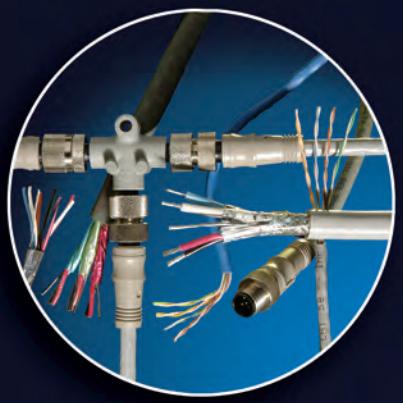
Pacer Group



NMEA 2000®
Network Cables
& Connectors

Marine Wire & Cable
Wire Management Materials
Terminals & Lugs
I.D. Products
Electrical Parts

LOCATIONS

CORPORATE HEADQUARTERS

1555 Apex Rd.
Sarasota, FL 34240
800-424-9549
941-378-5774
FAX: 941-379-9015
Sales/Customer Service:
e-mail: websales@pacergroup.net
(Accounting, OEM Sales, Distribution, Wire Manufacturing, Engineering)

HARNESS / PANEL DIVISION

2515 Commerce Court
Bowling Green, FL 33834
863-773-3914

EAST COAST FLORIDA DISTRIBUTION

3303 SW 11th Ave.
Ft. Lauderdale, FL 33315
800-634-5031
954-462-0902
FAX: 954-763-8062
Sales/Customer Service:
e-mail: scacioppo@pacergroup.net
(Sales and Distribution)

CERTIFIED MARINE ABYC ELECTRICAL TECHNICIAN

NMEA

Member

ABYC Setting Standards for Safer Boating

Marine Industries Association of South Florida TO KEEP PLEASURE IN BOATING

COMMITMENT:

At Pacer Group our goals are simple; to achieve total customer satisfaction by delivering error free, competitive products, on time, with service second to none.

ORDERING:

Pacer is capable of receiving orders by phone, fax and e-mail. Office hours are from 8:00 a.m. to 5:00 p.m. eastern standard time. Orders meeting standard packaging, placed before 12 noon, will ship the same day. Our sales staff is experienced and qualified to answer any questions you may have concerning our products.

Additions: Additions to existing orders are allowed so long as the original order has not been processed for shipment. If this is the case, please place a separate order.

RETURN POLICY:

Pacer will refund your purchase in full if it is returned within 15 days, with an approved RMA. Sales after 15 days are subject to a 20% restocking fee. Sales after 90 days are final.

Non-standard cut lengths of wire and cable are non-returnable, non-refundable.

FREIGHT:

All material is shipped F.O.B. Sarasota, FL or F.O.B. Ft. Lauderdale, FL.

PAYMENT TERMS:

Net 30 days will be given to companies with approved credit. Pacer will ship orders C.O.D. or payment can be made by credit card.

PRICING:

All prices listed on our price sheet are subject to change without notice. Prices do not include freight or any local, state or federal taxes. Volume pricing is available.

MINIMUMS:

Pacer has positioned itself to sell products at the lowest possible minimum. Listed in this catalog with each item description are standard package quantities.

CLAIMS:

Please inspect all items received for damages. Freight claims are against the carrier. If you are not satisfied with the material received, return the product within 15 days with an approved RMA# for a full refund, replacement or credit.

WARRANTY AND DISCLAIMER:

All statements, technical information and recommendations related to the Sellers' (Pacer Group, Inc.) product line are based upon information believed to be true and correct, but the accuracy and completeness thereof is not guaranteed. Before using a product the User should determine the suitability of the product for its intended use. Since Seller cannot control the manner or use of its products after their sale, the User assumes all risks and liability whatsoever in connection with such use. Since Seller is only acting as a distributor of products manufactured by other companies, Seller expressly limits its liabilities to any guarantees Seller will pass through to the customer. No warranty will apply if its products are in any way altered or modified after delivery by Seller.

Pacer reserves the right to substitute a specified manufacturer's product listed in this catalog with an equivalent product, if the listed manufacture's product is not available at the time of the order.

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#43576 9/09 2.5M

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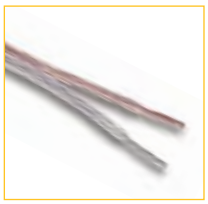

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BOAT CABLE

105˚C DRY 75˚C WET (BC-5W2) 600V TINNED COPPER FLAT CONSTRUCTIONS

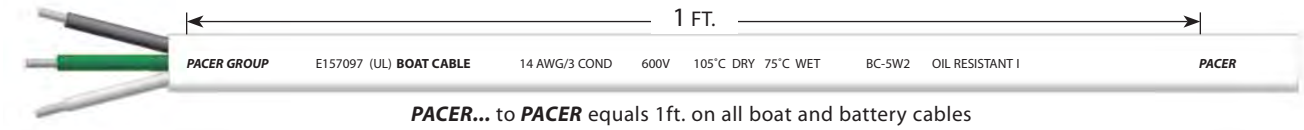
Pacer stocks over 50 different marine boat cable constructions. Our stock includes both flat and round configurations with varying conductor and jacket colors. Pacer's boat cable has become the choice for hundreds of boat builders due to our extensive stock and quick shipments. Our manufacturing process extrudes a flexible yet tough PVC jacket. This extrusion process fills the voids between conductors leaving no air space for condensation to accumulate. The inner conductors, which are made to the same specifications as our WUL primary wire, are coated allowing for easy removal of the jacket. The finished product is flexible, durable and easy to install.

FEATURES:

- Finely stranded ABYC (Type III) tinned copper conductors
- Color coded PVC jacket.
- Temperature Range: -20˚C to 105˚C
- Voltage Rating: 600V
- Resistant To: Acid, Alkalis, Abrasion, Flame, Gasoline, Oil, Moisture
- Applications: AC and DC internal wiring of boats

COMPLIANCES:

UL Standard 1426
ABYC: E-11.16
Coast Guard: 33 CFR part 183
NMMA



PACER... to ***PACER*** equals 1ft. on all boat and battery cables

	PART NUMBER (A)	AWG	NUMBER OF COND(S)	CONDUCTOR STRANDING	JACKET THICKNESS	NOMINAL O.D.	STANDARD PUT-UPS (B)	APPRX. SHIP LBS.
	Duplex Boat Cable - White, Black, Conductors, White Jacket.							
	W16/2	16	2	26/.0100	.30	.186 x .312	C, TL, D, M	51
	W14/2	14	2	41/.0100	.30	.205 x .348	C, TL, D, M	65
	W12/2	12	2	65/.0100	.30	.220 x .378	C, TL, D, M	82
	W10/2	10	2	105/.0100	.30	.245 x .428	C, TL, D, M	128
	DUPLEX "DC" BOAT CABLE - RED, BLACK CONDUCTORS, WHITE JACKET (SILVER PRINT).							
	W16/2DC	16	2	26/.0100	.30.	186 x .312	C, TL, D, M	51
	W14/2DC	14	2	41/.0100	.30	.205 x .348	C, TL, D, M	65
	W12/2DC	12	2	65/.0100	.30	.220 x .378	C, TL, D, M	82
	W10/2DC	10	2	105/.0100	.30	.245 x .428	C, TL, D, M	128
	W8/2DC	8	2	168/.0100	.45	.357 x .622	C, TL, D, M	230
	W6/2DC	6	2	266/.0100	.45	.436 x .785	C, TL, D	364
	DUPLEX DUPLEX "DC" BOAT CABLE - RED, YELLOW CONDUCTORS, BLUE JACKET*.							
	W16/2RYB	16	2	26/.0100	.30	.186 x .312	C, TL, D, M	51
	W14/2RYB	14	2	41/.0100	.30	.205 x .348	C, TL, D, M	65
	W12/2RYB	12	2	65/.0100	.30	.220 x .378	C, TL, D, M	82
	W10/2RYB	10	2	105/.0100	.30	.245 x .428	C, TL, D, M	128
	W8/2RYB	8	2	168/.0100	.45	.357 x .622	C, TL, D, M	230
	W6/2RYB	6	2	266/.0100	.45	.436 x .785	C, TL, D	364
	TRIPLEX "AC" BOAT CABLE - BLACK, GREEN, WHITE CONDUCTORS, WHITE JACKET.							
	W16/3	16	3	26/.0100	.30	.186 x .435	C, TL, D, M	70
	W14/3	14	3	41/.0100	.30	.205 x .485	C, TL, D, M	93
	W12/3	12	3	65/.0100	.30	.220 x .538	C, TL, D, M	128
	W10/3	10	3	105/.0100	.30	.245 x .613	C, TL, D	175
	W8/3	8	3	168/.0100	.45	.357 x .888	C, TL, D	340
	W6/3	6	3	266/.0100	.45	.436 x 1.130	C, TL	523
	TRIPLEX "AC" BOAT CABLE - BLACK, GREEN, RED CONDUCTORS, BLUE JACKET.							
	W14/3B	14	3	41/.0100	.30	.205 x .485	C, TL, D, M	93
	W12/3B	12	3	65/.0100	.30	.220 x .538	C, TL, D, M	128
	W10/3B	10	3	105/.0100	.30	.245 x .613	C, TL, D	175
	TRIPLEX "AC" EURO BOAT CABLE – BROWN, GRN/YEL, LT. BLUE CONDUCTORS, TAN JACKET							
	W14/3EURO	14	3	41/.0100	.30	.205 x .485	C, TL, D, M	93
	W12/3EURO	12	3	65/.0100	.30	.220 x .538	C, TL, D, M	128
	W10/2EURO	10	3	105/.0100	.30	.245 x .613	C, TL, D	175
	W8/3EURO	8	3	168/.0100	.45	.357 x .888	C, TL, D	340

SEE TECHNICAL DATA PAGE 69 FOR CIRCULAR MIL AREA OF CONDUCTORS.

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ROUND BOAT CABLE

105°C DRY 75°C WET 600V TINNED COPPER - ROUND CONSTRUCTIONS

Round boat cables allow for easy installation where tight twists and turns are common. Many installers prefer the use of round cables as they are easier to organize and leave a more presentable, finished installation.

PART NUMBER (A)	AWG	NUMBER OF COND(S)	CONDUCTOR STRANDING	JACKET THICKNESS	NOMINAL O.D.	STANDARD PUT-UPS (B)	APPRX. SHIP LBS.
ROUND DUPLEX BOAT CABLE - RED, BLACK, CONDUCTORS, GRAY JACKET.							
WR16/2DCG	16	2	26/.0100	.30	.310	C, TL, D, M	53
WR14/2DCG	14	2	41/.0100	.30	.390	C, TL, D, M	67
WR12/2DCG	12	2	65/.0100	.30	.430	C, TL, D, M	85
WR10/2DCG	10	2	105/.0100	.30	.500	C, TL, D	130
ROUND TRIPLEX "AC" BOAT CABLE - BLACK, GREEN, WHITE CONDUCTORS, GRAY JACKET.							
WR16/3G	16	3	26/.0100	.30	.340	C, TL, D, M	73
WR14/3G	14	3	41/.0100	.30	.420	C, TL, D, M	96
WR12/3G	12	3	65/.0100	.30	.470	C, TL, D	131
WR10/3G	10	3	105/.0100	.30	.540	C, TL, D	178
ROUND QUAD BOAT CABLE - BLACK, GREEN, RED, WHITE CONDUCTORS, GRAY JACKET.							
WR16/4G	16	4	26/.0100	.30	.370	C, TL, D, M	108
WR14/4G	14	4	41/.0100	.30	.400	C, TL, D, M	136
WR12/4G	12	4	65/.0100	.30	.480	C, TL, D	185
WR10/4G	10	4	105/.0100	.30	.565	C, TL, D	253
WR8/4G	8	4	168/.0100	.45	.880	C, TL, D	475
WR6/3-8/1G	6*	4	266/.0100	.45	.940	C, TL	650
WR4/3-6/1G	4**	4	420/.0100	.45	1.100	C, TL	920

*Black, Red, White @ 6 AWG, Green @ 8 AWG
**Black, Red, White @ 4 AWG, Green @ 6 AWG

ROUND MULTIPLE CONDUCTOR BOAT CABLE - GRAY JACKET.							
WR16/6G	16	6	26/.0100	.30	.455	C, TL, D, M	130
WR14/6G	14	6	41/.0100	.30	.515	C, TL, D, M	200
WR14/9G	14	9	41/.0100	.30	.645	C, TL, D	280
WR14/12G	14	12	41/.0100	.30	.725	C, TL	375

CONDUCTOR COLORS
16/6, 14/6 colors: Black, Brown, Red, Green, Blue, White
14/9 colors: Black, Red, Orange, Yellow, Green, Blue, Violet, Gray, White
14/12 colors: Black, Brown, Red, Orange, Yellow, Green, Blue, Violet, Gray, White, White/Black, White/Brown

SEE TECHNICAL DATA PAGE 69 FOR CIRCULAR MIL AREA OF CONDUCTORS.

(B) PUT-UP DESIGNATION	QTY.
-C	100
-TL	250
-D	500
-M	1000

ORDERING INFORMATION:
Order by standard put-up.
Combine Part Number (A) with Put-up Designation (B)
EXAMPLE: 14 AWG 3 Conductor, Round, Gray Jacket 1000 Feet.= WR14/3G-M

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MARINE BATTERY CABLE

105˚C DRY 75˚C WET 600V TINNED COPPER

One of the primary concerns of professional marine electricians is cable flexibility. Marine applications are characteristically in enclosed areas with sharp turns. The less flexible the cable, the more difficult the job will be. The two factors affecting a cable's softness are its stranding and its insulation. Pacer's UL listed marine battery cable is made of type III rope stranded tinned copper and is insulated with a pliable yet durable compound. It maintains key physical and electrical resistance properties. Pacer Group's battery cable flexibility and consistent quality has made it the preferred choice among hundreds of marine OEM's.

Pacer stocks a full line of gauges and colors. Put-up sizes are 50, 100 and 500 feet.

COMPLIANCES:

UL Standard 1426 (BC-5W2)
AWM 1232/1283 (6-2 AWG)
AWM 1232/1284 (1 AWG - 4/0)
CSA: TEW
ABYC: E-11.16
Coast Guard: 33 CFR part 183 Subpart I
NMMA

FEATURES:

- Finely stranded tinned copper conductor, ABYC (Type III)
- Color coded PVC insulation (See chart)
- Temperature Range: -20˚C to 105˚C
- Voltage Rating: 600V
- Resistant To: Acid, Alkalis, Abrasion, Flame, Gasoline, Oil, Moisture
- Applications: Connecting a battery or generator to a switch, starter or ground, windlass, inverter or any high amperage equipment

PART NUMBER (A)	AWG	COND. STRAND THICKNESS	NOM. INSULATION	NOMINAL O.D.	STANDARD PUT-UPS	APPRX. SHIP LBS./M
WUL6	6	266/.0100	.060	.340	C, TL, D	136
WUL4	4	420/.0100	.060	.398	L, C, TL, D	189
WUL2	2	665/.0100	.060	.464	L, C, TL, D	292
WUL1	1	836/.0100	.080	.567	L, C, TL, D	360
WUL1/0	0	1064/.0100	.080	.621	L, C, TL	450
WUL2/0	00	1330/.0100	.080	.653	L, C, TL	551
WUL4/0	0000	2109/.0100	.080	.785	L, C, TL	820

SEE TECHNICAL DATA PAGE 69 FOR CIRCULAR MIL AREA OF CONDUCTORS.

COLOR	COLOR ABBR. (B)	6	4	2	1	1/0	2/0	4/0	PUT-UP DESIGNATION (C)	QTY.
BLACK	BK								-L	50
RED	RD								-C	100
YELLOW	YL								-TL	250
GREEN	GN								-D	500
WHITE	WH									

ORDERING INFORMATION:

Order by standard put-up size.
Combine Part Number (A) with Color Abbreviation (B) and Put-up Designation (C)
EXAMPLE: 2/0 AWG Black, 250 Feet = WUL2/0BK-TL

4/0 Battery Cable

BATTERY CABLE

Pacer Group's battery cable is the most flexible in the industry. The preferred choice among marine professionals nationwide.

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MARINE PRIMARY WIRE

105˚C DRY 75˚C WET 600V TINNED COPPER

Pacer's primary wire meets and exceeds the most stringent marine specification - UL Standard 1426 BC-5W2 (105˚C Dry 75˚C Wet). Our wire is constructed from finely stranded tinned plated copper and is covered with a flexible PVC insulation. Our extensive stock, quick shipments, uncompromising quality and competitive prices have made us a standard in the industry.

FEATURES:

- Finely stranded tinned copper conductors ABYC (Type III)
- Color coded PVC insulation (See chart)
- Temperature Range: -20˚C to 105˚C
- Voltage Rating: 600V
- Resistant To: Acid, Alkalis, Abrasion, Flame, Gasoline, Oil, Moisture
- Applications: Internal wiring of electrical equipment.
  Internal wiring of panels and meters
  Point to point wiring

COMPLIANCES:

UL Standard 1426 (BC-5W2)
AWM 1015/1230 (16-10 AWG)
AWM 1028/1231 (8 AWG)
CSA: TEW
ABYC: E-11.16
Coast Guard: 33 CFR part 183
NMMA

PART NUMBER (A)	AWG	COND. STRAND THICKNESS	NOM. INSULATION	NOMINAL O.D.	STANDARD PUT-UPS	APPRX. SHIP LBS./M
WUL16	16	26/.0100	.032	.125	C, D, M, 5M	15
WUL14	14	41/.0100	.032	.145	C, D, M, 4M	22
WUL12	12	65/.0100	.032	.160	C, D, M, 3M	32
WUL10	10	105/.0100	.032	.185	C, D, M, 2M	49
WUL8	8	168/.0100	.045	.265	C, D, M,	80

SEE TECHNICAL DATA PAGE 69 FOR CIRCULAR MIL AREA OF CONDUCTORS.

COLOR	COLOR ABBR. (B)	*STRIPE NUMBER (C)	16	14	12	10	8	PUT-UP DESIGNATION (D)	QTY.
BLACK	BK	-0						-C	100
BROWN	BR	-1						-D	500
RED	RD	-2						-TL	250
ORANGE	OR	-3						-M	1000
YELLOW	YL	-4						-2M	2000
GREEN	GN	-5						-3M	3000
LT. GREEN	LG	N/A						-4M	4000
BLUE	BL	-6						-5M	5000
LT. BLUE	LB	N/A							
VIOLET	VI	-7							
GRAY	GY	-8							
WHITE	WH	-9							
TAN	TN	N/A							
PINK	PK	N/A							

ORDERING INFORMATION:

Order by standard put-up.
Combine Part Number (A) with Color Abbreviation (B), Optional Stripe Designation (C) and Put-up Designation (D)
EXAMPLE: 12 AWG Black, 500 Feet = WUL12BK-D
EXAMPLE WITH STRIPE: 12 AWG Red/Violet, 500 Feet = WUL12RD-7-D
***500 foot minimum for all striped wire**

SAE PRIMARY WIRE
(GPT) J1128 & J378 105˚C 50V

General Purpose Thermoplastic (GPT) insulated primary wire conforms to SAE specifications J1128 and J378. Insulated with 105˚C PVC. GPT is intended for 50V or less applications. The polyvinyl chloride insulation provides excellent resistance to moisture, acids, alkalis, oil, gasoline, flame and abrasion.

Pacer stocks GPT primary wire in all colors and gauge sizes from 16 through 8 awg. Put-up sizes are 100ft., 500ft. and 1000ft. All standard put-ups are available for immediate shipment.

FEATURES:

- ABYC Type II stranded bare copper conductor
- Color coded PVC insulation (See chart)
- Temperature Range: -20˚C to 105˚C
- Voltage Rating: 50V
- Resistant To: Acid, Alkalis, Abrasion, Flame, Gasoline, Oil, Moisture
- Applications: General Purpose marine, industrial, automotive and truck use
- Electrical installations operating at potentials of less than 50V

COMPLIANCES:

S.A.E. GPT J1128 & J378
Coast Guard: 33 CFR part 183.430
ABYC E-11.16

PART NUMBER (A)	AWG	COND. STRAND THICKNESS	NOM. INSULATION	NOMINAL O.D.	STANDARD PUT-UPS	APPRX. SHIP LBS./M
WSA16	16	19/.0112	.023	.105	C, D, M, 2M	13
WSA14	14	19/.0141	.023	.120	C, D, M, 2M	18
WSA12	12	19/.0176	.026	.145	C, D, M	28
WSA10	10	104/.0100	.031	.185	C, D, M	43
WSA8	8	96/.0126	.037	.220	C, D, M	70

SEE TECHNICAL DATA PAGE 69 FOR CIRCULAR MIL AREA OF CONDUCTORS.

COLOR	COLOR ABBR. (B)	*STRIPE NUMBER (C)	16	14	12	10	8	PUT-UP DESIGNATION (D)	QTY.
BLACK	BK	-0						-C	100
BROWN	BR	-1						-D	500
RED	RD	-2						-M	1000
ORANGE	OR	-3						-2M	2000
YELLOW	YL	-4							
GREEN	GN	-5							
BLUE	BL	-6							
LT. BLUE	LB	N/A							
VIOLET	VI	-7							
GRAY	GY	-8							
WHITE	WH	-9							
TAN	TN	N/A							
PINK	PK	N/A							

ORDERING INFORMATION:

Order by standard put-up.
Combine Part Number (A) with Color Abbreviation (B), Optional Stripe Designation (C) and Put-up Designation (D)
EXAMPLE: 12 AWG Black, 500 Feet = WSA12BK-D
EXAMPLE WITH STRIPE: 12 AWG Red/Violet, 500 Feet = WSA12RD-7-D
*500 foot minimums for all stripes

BONDED WIRE

Bonded primary wires are made of two, three or four conductors of various colors parallel bonded. Typical applications are low voltage lights, trailer lights, or where multiple conductors need to be routed quickly and easily. Bonded wire is constructed from 105˚C SAE GPT primaries. It is an economical alternative to jacketed wire.

Standard put-up sizes are 500 and 1000 feet.

PART NUMBER	AWG	NUMBER OF CONDUCTORS	CONDUCTOR STRANDING	APPRX. SHIP LBS./M
WB16BK-RD	16	2	19/.0112	25
WB16BK-BL	16	2	19/.0112	25
WB16BK-GY	16	2	19/.0112	25
WB16BK-PK	16	2	19/.0112	25
WB16-3	16	3	19/.0112	38
WB16-4	16	4	19/.0112	50
WB14BK-RD	14	2	19/.0141	35
WB14BK-BL	14	2	19/.0141	35
WB14BK-GY	14	2	19/.0141	35

SEE TECHNICAL DATA PAGE 69 FOR CIRCULAR MIL AREA OF CONDUCTORS.

ORDERING INFORMATION:

Order by standard put-up size.

WB16-3 Colors: Brown, Yellow, Green
WB16-4 Colors: White, Brown, Yellow, Green

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SAE BATTERY CABLE
(SGT) J1127 & J378 105˚C 50V

Starter or Ground Thermoplastic (SGT) insulated battery cable conforms to SAE specifications J1127 and J378. Insulated with 105˚C PVC. SGT is intended for 50V or less applications. The polyvinyl chloride insulation provides excellent resistance to moisture, acids, alkalis, oil, gasoline, flame and abrasion.

FEATURES:
- ABYC Type II stranded bare copper conductor
- Color coded PVC insulation (See chart)
- Temperature Range: -20˚C to 105˚C
- Voltage Rating: 50V
- Resistant To: Acid, Alkalis, Abrasion, Flame, Gasoline, Oil, Ozone, Moisture, Fungus

COMPLIANCES:
S.A.E. SGT J1127 & J378
Coast Guard: 33 CFR part 183.430
ABCY E-11.16

PART NUMBER (A)	AWG	COND. STRAND THICKNESS	NOM. INSULATION THICKNESS	NOMINAL O.D.	STANDARD PUT-UP SIZES	APPRX. SHIP LBS./M
WSA6	6	49/.0233	.060	.334	C, TL, D, M	.13
WSA4	4	70/.0233	.065	.375	C, TL, D	.175
WSA2	2	133/.0223	.065	.450	C, TL, D	.29
WSA1	1	133/.0243	.065	.515	C, TL, D	323
WSA1/0	1/0	133/.0282	.065	.530	C, TL	431
WSA2/0	2/0	133/.0308	.065	.595	C, TL	497

SEE TECHNICAL DATA PAGE 69 FOR CIRCULAR MIL AREA OF CONDUCTORS.

COLOR ABBR. (B)	COLOR	6	4	2	1	1/0	2/0	DESIGNATION (C)	PUT-UP	QTY.
BLACK	BK								-C	100
RED	RD								-TL	250
GREEN	GN								-D	500
WHITE	WH								-M	1000

ORDERING INFORMATION:
Order by standard put-up.
Combine Part Number (A) with Color Abbreviation (B) and Put-up Designation (C)
EXAMPLE: 2 AWG Red, 100 Feet. = WSA2RD-C

STO CABLES

STO yellow "Ship-to-Shore" cable is constructed of finely stranded fully annealed bare copper conductors insulated with color coded PVC and covered with a tough thermoplastic (PVC) jacket. Made primarily for use as a portable cord, STO is designed to resist moisture, acids, alkalis, ozone and oil. Rated at 600V.

PART NUMBER	WIRE AWG	NUM. OF CONDUCTORS	STRANDING NUM./AWG.	NOMINAL O.D.	CURRENT AMPS*	APPRX. LBS/M
MSTO10/3	10	3	105/30	.660	30	272
MSTO6/3	6	3	266/30	.826	50	415
MSTO6/4	6	4	266/30	.903	50	570
MSTO2/3	2	3	665/30	1.25	100	971
MSTO2/4	2**	4	665/30	1.39	100	1,195

*Ampacity is based on 1996 NEC Table 400-5 (A) with a 30˚C ambient temperature. NOTE: the ampacity chart is provided for engineering information only. Pacer cannot recommend or express the use of these ampacities since the exact application may need approval from the authority having local jurisdiction.

** White, Black and Red conductors are 2 AWG, Green conductor is 4 AWG.

ORDERING INFORMATION:
STO cable is cut in 50 or 100 foot lengths.

NEW PRODUCT!

NMEA 2000® DEVICENET™ CABLES AND CONNECTORS

NMEA 2000® Overview

Ships and boats are outfitted with suites of electronics including everything from computers and GPS to depth sounders and nautical chart data on diskette. The National Marine Electronics Association (NMEA) has introduced a new standard (NMEA 2000) for data communication among shipboard electronic devices. A single network cable replaces a myriad of cables used by today's methods of interconnection. The NMEA 2000 network can accommodate navigation equipment, power generation, engines and machinery, piloting and steering systems, fire alarm and controls. Data, commands, and status all share the same cable at speeds 26 times greater than NMEA 0183 serial interface. NMEA 2000 is self-configuring, no setup is required, and no master controller is needed. Equipment may be added or removed without shutting down the network.

NMEA 2000 DeviceNet is composed of a rugged "physical layer" available in two cable sizes. Micro-C/ Euro-C uses 22 AWG for DC power and 24GA for signals and it is capable of carrying up to 4 AMPS. Mini-C carries up to 8 AMPS and is constructed with 16 AWG for power and 18GA for signals.

FEATURES and SPECIFICATIONS:

- Vibration resistance
- Temperature Rating -20C to 105C
- Ground circuit mates before other contacts
- Designed and Tested to IEC IP67 Standard
- Superior strain relief
- Vibration: Complies with MIL-STD 202F
- Test Method 204, Test Condition B
- Molded Connector: PVC
- Coupling Ring: Brass, Nickel
- Contacts: Copper Alloy, Gold Plated
- Cable: PVC Grey Jacket

DEVICENET™ MICRO-C CABLES AND CONNECTORS

MICRO-CHANGE CORDSET, NICKEL BRASS, THIN, DEVICENET

LENGTH	EXTENSION MALE/FEMALE PART NUMBER	FEMALE EXTENSION PART NUMBER	MALE EXTENSION PART NUMBER
0.5 M (1.64')	N84854-6034	N84854-7021	N84854-8021
1 M (3.28')	N84854-6035	N84854-7022	N84854-8022
2 M (6.56')	N84854-6036	N84854-7023	N84854-8023
3 M (9.84')	N84854-6037	N84854-7024	N84854-8024
4 M (13.12')	N84854-6038	N84854-7025	N84854-8025
5 M (16.40')	N84854-6039	N84854-7026	N84854-8026
6 M (19.69')	N84854-6055	N84854-7027	N84854-8027

T-ADAPTOR

PART NUMBER	DESCRIPTION
N84586-0017	T-Adaptor

MULTI-PORT 4-WAY BUSS CONNECTOR

PART NUMBER	DESCRIPTION
N84587-0001	Multi-Port

TERMINATION RESISTORS

PART NUMBER	DESCRIPTION
N84586-0018	Male Terminator Resistor
N84586-0019	Female Terminator Resistor

Male

Female

NEW MICRO-C Products

MICRO-C POWER TAP TEE CONNECTOR FEMALE LEFT TO FEMALE RIGHT

PART NUMBER	DESCRIPTION
N84863-9001	1 M (3.28') Drop Cable
N84863-9002	5 M (16.40') Drop Cable
N84863-9003	10 M (32.81') Drop Cable

BULKHEAD FEED THROUGH RECEPTACLE

PART NUMBER	DESCRIPTION
N84854-9300	Micro-C Bulkhead Feed Through Receptacle

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NEW PRODUCT!

DEVICENET™ MINI-C CABLES AND CONNECTORS

MICRO-CHANGE CORDSET, NICKEL BRASS, THIN, DEVICENET

LENGTH	EXTENSION MALE/FEMALE PART NUMBER
0.5 M (1.64')	N84856-1200
1 M (3.28')	N84856-1201
2 M (6.56')	N84856-1202
3 M (9.84')	N84856-1203
6 M (19.69')	N84856-1206

Female / Male Extension

T-ADAPTOR

PART NUMBER	DESCRIPTION
N84856-9104	T-Adaptor

BULKHEAD FEED THROUGH RECEPTACLE

PART NUMBER	DESCRIPTION
N84856-9103	Mini-C Bulkhead Feed Through Receptacle

TERMINATION RESISTORS

PART NUMBER	DESCRIPTION
N84856-9108	Male Terminator Resistor
N84856-9109	Female Terminator Resistor

Male

Female

FIELD ATTACHABLE CONNECTORS

PART NUMBER	DESCRIPTION
N84856-9050	Mini-C Female
N84856-9051	Mini-C Male

NEW MINI-C Products

POWER TAP TEE CONNECTOR

PART NUMBER	DESCRIPTION
N84856-9112	Mini-C Power Tap Female/ Female with Fuse and LED

MINI-C POWER CORDSET

(2 Power, 2 Ground) For use with Power Tap Tee Conn.

PART NUMBER	LENGTH	DESCRIPTION
N84856-9113	1 M (3.28')	MINI-C CORD SET TO FEMALE
N84856-9114	5 M (16.40')	MINI-C CORD SET TO FEMALE
N84856-9115	10 M (32.81')	MINI-C CORD SET TO FEMALE

NMEA 2000® CABLES

DeviceNet™ Micro/Euro Cable

Micro/Euro cable meets and exceeds NMEA 2000® specifications. Micro cable (4amps) can be used for drops or as the trunk line, depending on the power requirements of the network.

P/N: MDN–MICRO

DeviceNet™ Mini-CTM Cable

Mini cable is used as a trunk line cable, but can also be used as a drop cable. Mini cable is capable of carrying up to 8amps for use in larger networks and for networks that have components which draw power directly from the bus.

P/N: MDN–MINI

FEATURES and BENEFITS:

- Data & Power in one Cable
- Reduced Cable Installation Costs
- Meets and exceeds NMEA 2000® specifications
- Twisted and Shielded for Noise Immunity
- Tough, Light Gray PVC Jacket

AWGINSULATION (STRANDING) MAX DCR	NOM. MATERIAL (COLOR CODE)	NOM. O.D. INCHES	NOM. IMPEDANCE (OHMS)	NOM. VEL. OF PROP.	CAPACITANCE	APPROVALS
1pr - #22 TC	Power pair	0.280	120		12.0 pF/ft.	NEC
(19 x #34)	PVC/Nylon					CMG CL2
19.0 ohm/M'	(black/red)					CEC CMG
1pr - #24 TC	Data pair			Data pair		Thin CL2
(19 x #36)	Foam PE			75%		NMEA 2000®
27.7 ohm/M'	(blue/wht)					

TRUNK ATTACHABLE CONNECTOR

PART NUMBER	DESCRIPTION
N84854-9317	Micro-C Female
N84854-9318	Micro-C Male

AWGINSULATION (STRANDING) MAX DCR	NOM. MATERIAL (COLOR CODE)	NOM. O.D. INCHES	NOM. IMPEDANCE (OHMS)	NOM. VEL. OF PROP.	CAPACITANCE	APPROVALS
1pr - #16 TC	Power pair	0.475	120		12.0 pF/ft.	NEC
(19 x #28)	PVC/Nylon					CMG PLTC
3.6 ohm/M'	(black/red)					CEC CMG
1pr - #18 TC	Data pair			Data pair		Thin CL2
(19 x #30)	Foam PE			75%		NMEA 2000®
6.9 ohm/M'	(blue/wht)					

TRUNK ATTACHABLE CONNECTOR

PART NUMBER	DESCRIPTION
N84856-9101	Mini-C Female
N84856-9102	Mini-C Male

ORDERING INFORMATION: Cut as required

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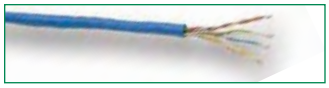
CAT 5E ENHANCED



- *ETL verified for ISO 11801 Category 5
- ETL Verified for TIA/EIA 568B Category 5E

PART NUMBER	TYPE	PAIRS	AWG (STRANDING TYPE)	COLOR	NEC	PACKAGING	WEIGHT (LBS)
M24/4PR-CAT5E	UNSHEILDED	4	24 (SOLID BARE)	GREY	CMR/MPR	1000 FT PULLOUT	26lb/kft.
M24/4PRS-CAT5E	UNSHEILDED	4	24 (7/32) TINNED	GREY	CM	1000 FT PULLOUT	26lb/kft.
M24/4PRF-CAT5*	OVERALL SHEILD	4	24 (SOLID BARE)	GREY	CM/MP	1000 FT PULLOUT	26lb/kft.
M2/4PRFS-CAT5E	OVERALL SHEILD	4	26 (7/34) TINNED	GREY	CM	1000 FT PULLOUT	26lb/kft.

CAT 6 RJ45 MODULAR PLUG

RJ45 modular plugs support CAT 6 installations, meeting the TIA/EIA-568-B.2 requirements for NEXT (Near End Cross Talk) and Return Loss. Unique 3-piece design includes a conductor liner, allowing conductors to be ordered and held in position for insertion into the plug body. Plugs are crimped using standard RJ45 crimp nests allowing existing installation tools to be used.

PART NUMBER
ERJ-45 (25 PER PACK)

RJ45 FIELD MOISTURE-RESISTANT ETHERNET CONNECTIONS

- Robust bayonet style lock
- Superior strain relief
- Meets NEMA 6P and IP 67 rating
- Easy plug termination
- Simple error-free mating

PART NUMBER
E84700PLUG
E84700RECP
E84700CAP

TELEMASTER CRIMP TOOL

P/N: VT30-496

For More Information
See Page 45

TELEMASTER CRIMP KIT

P/N: VT33-750

How to wire a 10BaseT or 100BaseT connector with Category 5 cable and RJ45 connectors using USOC 568B wiring standards

EIA/TIA 568B Wiring Standard	
PIN	**Wire Color***
1	White w/Orange Stripe
2	Orange w/White Stripe
3	White w/Green Stripe
4	Blue w/White Stripe
5	White w/Blue Stripe
6	Green w/White Stripe
7	White w/Brown Stripe
8	Brown w/White Stripe

For Cross Over Cable Wiring Wire ONE end using 568B and one end as 568A (swap Orange and Green pairs)

568B is the most widely used standard for ethernet cables. If you wire both ends of your cable using 568B, you'll have a straight-through cable usable for most ethernet applications. Wiring a cable with 568A on one end and 568B on the other will result in a Cross-over cable for connecting two hubs together, or two computers together.

EIA/TIA 568A Wiring Standard	
PIN	**Wire Color***
1	White w/Green Stripe
2	Green w/White Stripe
3	White w/Orange Stripe
4	Blue w/White Stripe
5	White w/Blue Stripe
6	Orange w/White Stripe
7	White w/Brown Stripe
8	Brown w/White Stripe

For Cross Over Cable Wiring Wire ONE end using 568B and one end as 568A (swap Orange and Green pairs)

568A is used for a lot of ethernet cables. It is one of the two most widely used standards. If you wire both ends of your cable using 568A, you'll have a straight-through cable usable for most ethernet applications. Wiring a cable with 568A on one end and 568B on the other will result in a Cross-over cable for connecting two hubs together, or two computers together.

STEP 1: Cut the outer jacket of the wire about 1.5" to 2" from the end. This will give you room to work with the wire pairs. Separate the pairs and align them in the order shown above. Begin flattening the wires into a "ribbon" so that it will easily slip into the connector and into the individual channeled areas.

STEP 2: Once you have all the wires aligned and ready to insert, you must trim them to approximately 1/2" in order to have as little "untwisted" wire in the connection as possible. Category 5 specifications require a certain number of twists per inch and even the connector counts!

STEP 3: Insert the wires into the connector making sure that each wire goes into its appropriate "channel" and extends all the way to the end of the connector underneath the gold crimping connectors. Sometimes you can look at the end of the connector to see the copper wires if you're using solid copper cable. If the wires don't extend to the end of the connector, the crimp may not make contact.

STEP 4: Press the cable and the jacket into the connector firmly so that the jacket will be crimped by the plastic wedge near the rear of the connector, insert it into your crimping tool and crimp the cable. RE-CRIMP the cable to make sure all connections are made.

STEP 5: Repeat steps 1 thru 4 for the other end of the cable for a standard ethernet cable.

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COAXIAL CABLES

Pacer stocks a wide variety of coaxial cables, including most standard configurations as well as specialized constructions created for marine environmental conditions. Let us help you find the proper cable for your application.

50 OHM COAXIAL CABLES

PART NUMBER	COND. AWG	INSUL. MATERIAL	SHIELD COVERAGE	JKT. MATERIAL/ NOM. O.D.	NOMINAL CAP. pF/ft	NOMINAL CAP. pF/m	VELOCITY PROPAGATION pF/m	NOMINAL IMPEDANCE Ω
MRG8/U1154	13 (7x21) Bare Copper	Solid Polyethylene	95% Bare Copper Braid 1.2Ω/M	Black PVC .405	29.5	96.76	66	52
MRG8/U1180	9 1/2 Bare Copper	Solid Polyethylene	100% Bonded Foil + 88% Tinned Copper Braid 1.8Ω/M	Black PVC .405	24.0	78.72	84	50
MRG8XW *MRG8XW-D *MRG8XW-M	16 (19x28) Tinned Copper	Solid Polyethylene	95% Tinned Copper Braid 3.7Ω/M	**White PVC** .242	28.0	91.84	78	50
MRG58A/UW	20 (19x.0071) Tinned Copper	Solid Polyethylene	95% Tinned Copper Braid 4.1Ω/M	**White PVC** .195	30.8	101.02	66.0	50
MRG213/U	13 (7x21) Bare Copper	Solid Polyethylene	95% Bare Copper Braid 1.2Ω/M	Black PVC .405	30.8	101.02	66.0	50
MRG214/U	13 (7x.0296) .089 Silver Coated Copper	Solid Polyethylene	98% 2 Silver Coated Copper Braid .70Ω/M	Black PVC .425	30.8	101.02	66.0	50

75 OHM COAXIAL CABLES

MRG6/U	Copper Clad Steel	Cellular Polyethylene	100% Flexfoil +61% Tinned Copper Braid 5.2Ω/M	Black PVC .270	17.3	56.74	78	75
MRG6/UW *MRG6/UW-D	18 Solid Copper Clad Steel	Cellular Polyethylene	100% Flexfoil +95% Tinned Copper Braid 5.2Ω/M	**White PVC** .270	17.3	56.74	78	75
MRG11/U	14 Solid Bare Copper	Cellular Polyethylene	95% Flexfoil Copper Braid 1.24Ω/M	Black Polyethylene .405	17.3	56.75	78	75
MRG59/UW *MRG59/UW-D *MRG59/UW-M	22 Solid Copper Clad Steel	Solid Polyethylene	95% Tinned Copper Braid 2.6Ω/M	**White PVC** .242	20.5	N/A	66%	73

ORDERING INFORMATION:

Cut as Required.

* -D = Denote "Easy-Out" Pull-Out Boxes at 500 ft.
* -M = Denote "Easy-Out" Pull-Out Boxes at 1,000 ft.

SEE page 18 for Mini-RGB.

NEW PRODUCT!

LMR® CABLES

LMR Cables are high performance broadband, flexible, low loss 50 and 75 Ohm coaxial communication cables designed for use on wireless applications such as:

- 2-way land mobile
- IEEE, 802.11a & 802.11b
- Cellular
- Wireless local loop
- Wireless Internet (WISP)
- Broadband wireless data
- Telemetry

LMR cables have RF performance comparable to traditional corrugated copper cables, but, unlike corrugated cables, they are highly flexible, non-kinking. Compared to RG typed braided cables, LMR cables offer far lower loss and better RF shielding. The Polyethylene jacket, closed cell foam poly dielectric and bonded tape conductor all contribute to the superior weather resistance of LMR cables.

LMR has an UV Resistant Polyethylene jacketed cable designed for 20-year service, outdoor use.

PART NUMBER	COND. TYPE	INSUL. MATERIAL	SHIELD TYPE	NOM. O.D.	NOMINAL CAP. PF/FT	VELOCITY OF PROPAGATION PF/M	NOM. IMPEDANC OHMS
MLMR-240	SOLID BC	FOAM PE	ALUM TAPE	.240	24.2	84%	50
MLMR-400	SOLID BCCAI	FOAM PE	TINNED COPPER	.405	23.9	85%	50
MLMR-400-75	SOLID BC	FOAM PE	BRAID	.405	15.9	85%	75

NEW PRODUCT!

COMPRESSION SEAL CONNECTORS

F-Type

BNC Type

RCA Type

These single-piece connectors make installation of RG6, RG6-Quad, and RG59 cables go quickly and smoothly, and create a high quality, permanent 360° connector-to-cable seal. The connectors are made of machined annealed brass with an anti-corrosion nickel plated finish for maximum conductivity and reliability.

COMPRESSION TOOLS

VTCL-101

Professional Grade

VTCL-103

Field Use

PART NUMBER	CONN. TYPE	CABLE DIAMETER	CABLE TYPES	COMPRESSION TOOL
ECF-59	F	0.240	RG-59U, LMR-240	VTCLT-101, VTCLT-103
ECF-6	F	0.270	RG-6U	VTCLT-101, VTCLT-103
ECBNC-59	BNC	0.240	RG-59U, LMR-240	VTCLT-101, VTCLT-103
ECBNC-6	BNC	0.270	RG-6U	VTCLT-101, VTCLT-103
ECRCA-59	RCA	0.240	RG-59U, LMR-240	VTCLT-101, VTCLT-103
ECRCA-6	RCA	0.270	RG-6U	VTCLT-101, VTCLT-103

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COAXIAL CABLE CONNECTORS

PART NUMBER	CONNECTOR TYPE	FOR CABLE TYPE	PLATING TYPE
EPL259	UHF SERIES-PLUG	RG 8, 11, 213, 214	NICKEL
EPL259S	UHF SERIES-PLUG	RG 8, 11, 213, 214	SILVER
EUG175	REDUCER FOR PL259	RG 58	NICKEL
EUG175S	REDUCER FOR PL259S	RG 58	SILVER
EUG176	REDUCER FOR PL259	RG 59, 62, 8X	NICKEL
EUG176S	REDUCER FOR PL259S	RG 59, 62, 8X	SILVER
EPL258	JACK-JACK PL259 COUPLER		NICKEL
EF59	F-CONN. PLUG	RG 59	NICKEL
EF59TW	F-CONN. TWIST ON	RG 59	NICKEL
EF6	F-CONN. PLUG	RG 6	NICKEL
EF6TW	F-CONN. TWIST ON	RG 6	NICKEL
EF59WP	F-CONN. PLUG WATERPROOF	RG 59	CADMIUM
EF6WP	F-CONN. PLUG WATERPROOF	RG 6	CADMIUM
EF81 F-CONN.	FEMALE-FEMALE COUPLER		NICKEL
EBNC-58	BNC SERIES 3 PC.	RG 58	NICKEL
EBNC-59	BNC SERIES PC.	RG 59, 62, 8X	NICKEL
ETNC-58	TNC SERIES 3 PC.	RG 58	NICKEL

EPL259

EUG175 & EUG176

EPL258

EF59 & EF6

EF59TW & EF6TW

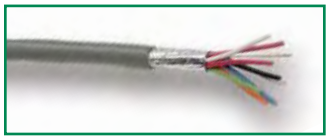
EF59WP & EF6WP

EF81

ORDERING INFORMATION:

Available by the piece.

MULTI-CONDUCTOR SHIELDED CABLES



Multi-conductor shielded cables are primarily used to provide R.F. interference protection. Their applications range from internal and external interconnection of electronic equipment to data transmission and signaling systems. Unless otherwise specified, all of our shielded cables have 100% aluminum/polyester foil tape with a 25% overlap and a stranded tinned copper drain wire.

FEATURES:

- Finely stranded tinned copper conductors
- Color coded PVC insulation
- Shield: 100% aluminum/polyester foil with a stranded tinned copper drain wire
- Gray PVC jacket
- Temperature Range - 20˚C to 80˚C (some cables may vary, call for specific information)
- Voltage Rating: 300V
- Resistant To: Acid, Alkalis, Abrasion, Ozone, Flame
- Applications: Computer interconnections
  Remote control circuits
  Data transmission
  Industrial Equipment

COMPLIANCES:

NEC Article 800 Type CM (UL: 75(C)
UL Style 2464 (UL: 80˚C, 300V)
CSA PCC (CSA: 60˚C)
Passes UL 70,000 Btu Vertical Tray Flame Test Passes CSA FT4 Flame Test

PART NUMBER	# OF COND.	COND. STRAND	**NOM. C-C CAP. PF/FT		NOMINAL INSULATION THICKNESS	NOMINAL JACKET THICKNESS	NOMINAL O.D.
			A	B			
M22/2F	2	7/30	36.0	65.0	.010	.032	.169
M22/3F	3	7/30	36.0	65.0	.010	.032	.177
M22/4F	4	7/30	36.0	65.0	.010	.032	.190
M22/6F	6	7/30	34.0	61.0	.010	.032	.219
M22/8F	8	7/30	34.0	61.0	.010	.032	.235
M22/10F	10	7/30	34.0	61.0	.010	.032	.269
M22/15F	15	7/30	34.0	61.0	.010	.032	.304
M20/2F	2	7/28	39.0	70.0	.015	.032	.207
M20/3F	3	7/28	39.0	70.0	.015	.032	.217
M20/4F	4	7/28	39.0	70.0	.015	.032	.236
M20/6F	6	7/28	37.0	66.0	.015	.032	.276
M20/8F	8	7/28	37.0	66.0	.015	.032	.297
M20/10F	10	7/28	37.0	66.0	.015	.032	.345
M20/15F	15	7/28	37.0	66.0	.015	.032	.393
M20/20F	20	7/28	37.0	66.0	.015	.032	.435
M18/2F*	2	16/30	50.0	90.0	.013	.037	.227
M18/3F*	3	16/30	47.0	84.5	.013	.037	.238
M18/4F	4	16/30	N/A	N/A	.010	.035	.245
M18/6F	6	16/30	N/A	N/A	.017	.032	.310
M18/8F	8	16/30	N/A	N/A	.017	.032	.330
M18/10F	10	16/30	N/A	N/A	.017	.032	.390
M18/15F	15	16/30	N/A	N/A	.017	.032	.450
M16/2F*	2	19/.0117	58.5	105.0	.013	.037	.243
M16/3F*	3	19/.0117	51.5	93.0	.013	.037	.255
M16/4F	4	19/.0117	N/A	N/A	.017	.032	.290
M16/6F	6	19/.0117	N/A	N/A	.017	.032	.350
M16/8F	8	19/.0117	N/A	N/A	.017	.032	.380
M14/2F*	2	19/.0147	66.0	118.5	.013	.042	.290
M14/3F*	3	19/.0147	57.0	103.0	.013	.042	.300
M12/2F*	2	19/.0185	74.0	135.5	.013	.042	.320

Nominal Capacitance: **A–Between Conductors **B**–Between Conductor and Shield
*Compliance's: NEC Article 725 Power-Limited Tray Cable (UL: 105˚C, 300V)
Passes UL 70,000 Btu Vertical Tray Flame Test.

ORDERING INFORMATION:

Cut as required.

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MULTI-PAIRED SHIELDED AND INDIVIDUALLY FOIL SHIELDED CABLES

Multi-paired shielded cables are specialty cables designed to be used where total isolation of signal is required. Pacer offers a variety of paired cables for a wide range of applications. Twisted paired cables are used to mitigate magnetic noise from sources such as AC motors or transformers. The foil shields will reduce static noise or signal distortion due to the electrical field radiated by a voltage source which has coupled into the signal-bearing circuit. If crosstalk is a problem, use individually shielded pairs Listed are our most popular selections.

If your application requires a cable not listed let us source it for you.

FEATURES:

- Finely stranded tinned copper conductors
- Color coded PVC insulation
- All constructions
- Shield: 100% aluminum/polyester foil with a stranded tinned copper drain wire Each individually shielded pair contains a tinned copper drain wire
- Gray PVC jacket
- Temperature Range -20˚C to 80˚C (Except where otherwise noted)
- Voltage Rating: 300V
- Resistant To: Acid, Alkalis, Abrasion, Ozone, and Flame

MULTI-PAIR, OVERALL SHIELD

Applications: Computers, Ind. Equipment, Data Transmission, Control Circuits
Features: Provides good flexibility, superior shielding where noise rejection is critical.
Compliances: NEC Art.800 Type CM, UL Style 2464, CSA PCC FT4

PART NUMBER	# OF PAIRS	COND. STRAND	NOM C-C CAPACITANCE PF/FT A	B	NOMINAL INSULATION THICKNESS	NOMINAL JACKET THICKNESS	NOMINAL O.D.
M22/2PRF	2	7/30	15.0	16.5	.010	.032	

MULTI-PAIR, INDIVIDUALLY SHIELDED w/OVERALL SHIELD

Applications: Computers, Ind. Equipment, control circuits where total isolation of signal is required
Features: Excellent high frequency properties, mechanical durability
Compliances: NEC Art.800 Type CM, UL Style 2835, CSA PCC FT1

PART NUMBER	# OF PAIRS	COND. STRAND	NOM C-C CAPACITANCE PF/FT A	B	NOMINAL INSULATION THICKNESS	NOMINAL JACKET THICKNESS	NOMINAL O.D.
M22/2PRIF	2	7/30	35.0	63.0	.010	.028	.208

MULTI-PAIR, INDIVIDUALLY SHIELDED NO OVERALL SHIELD

Compliances: NEC Art.800 Type CM, UL Style 2919, CSA PCC FT1

PART NUMBER	# OF PAIRS	COND. STRAND	NOM C-C CAPACITANCE PF/FT A	B	NOMINAL INSULATION THICKNESS	NOMINAL JACKET THICKNESS	NOMINAL O.D.
M22/2PRIF	3	7/30	40.0	72.0	.011	.032	.292

POWER-LIMITED TRAY CABLE, INDIVIDUALLY SHIELDED PAIRS

Applications: Burglar Alarms, Power Limited Circuits, Intercom Systems, Computer Interconnects
Features: Superior temperature characteristics, robust, highly durable, sunlight resistant jacket
Compliances: NEC Art.725 (UL: 80˚C, 300V, UL Style 2464, CSA PCC FT1

PART NUMBER	# OF PAIRS	COND. STRAND	NOM C-C CAPACITANCE PF/FT A	B	NOMINAL INSULATION THICKNESS	NOMINAL JACKET THICKNESS	NOMINAL O.D.
M18/2PRIF	2	16/30	50.0	90.0	.015	.042	.380
M18/3PRIF	3	16/30	50.0	90.0	.015	.053	.437

A–Between Conductors **B**–Between Conductor and Shield

ORDERING INFORMATION:
Cut as required.

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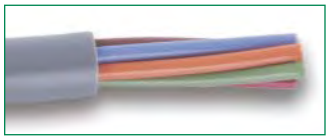
MULTI-CONDUCTOR CABLES



Pacer stocks a large variety of cables ranging from 16 gauge to 22 gauge, with the number of individual conductors varying from 2 to as many as 25. These cables are used for control purposes such as remote signaling as well as communications and broadcast applications. Our multi-conductor cables are insulated with PVC (polyvinyl chloride). Conductors are tinned for excellent corrosion resistance. These cables are manufactured to meet the latest UL, CSA and NEC requirements. Because temperatures and voltages may not be the same from cable to cable, call for specifications on the item you require. See Round Boat Cables for multi-conductor cables 16 AWG and larger with 2, 3 or 4 conductor configurations. Page 4.

FEATURES:

- Finely stranded tinned copper conductors
- Color coded PVC conductors
- Gray PVC jacket
- Temperature Range -20˚C to 80˚C (some cables may vary, call for specific information)
- Voltage Rating: 300V
- Resistant To: Acid, Alkalis, Abrasion, Ozone, Flame

COMPLIANCES:

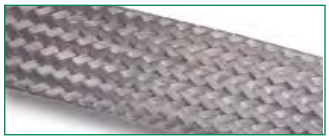
NEC Article 800 Type CM (UL: 75˚C)
UL Style 2464 (UL: 80˚C, 300V)
CSA PCC (CSA: 80˚C)
Passes UL 70,000 Btu Vertical Tray Flame Test
Passes CSA FT4 Flame Test

PART NUMBER	# OF COND.	COND. STRAND	NOMINAL** C-C CAPACITANCE PF/FT	NOMINAL INSULATION THICKNESS	NOMINAL JACKET THICKNESS	NOMINAL O.D.
M22/2*	2	7/30	25.5	.013	.037	.190
M22/4	4	7/30	25.5	.010	.032	.190
M22/6	6	7/30	25.5	.010	.032	.219
M22/8	8	7/30	25.5	.010	.032	.235
M22/10	10	7/30	25.5	.010	.032	.269
M22/25	25	7/30	25.5	.010	.032	.369
M20/2*	2	7/28	28.0	.013	.037	.207
M20/3*	3	7/28	28.0	.013	.037	.217
M20/4	4	7/28	26.0	.016	.032	.236
M20/5	5	7/28	26.0	.016	.032	.254
M20/7	7	7/28	26.0	.016	.032	.275
M20/9	9	7/28	26.0	.016	.032	.317
M20/12	12	7/28	26.0	.016	.032	.354
M20/15	15	7/28	26.0	.016	.032	.393
M18/2*	2	16/30	30.0	.013	.037	.227
M18/3*	3	16/30	30.0	.013	.037	.238
M18/4*	4	16/30	30.0	.013	.037	.257
M18/5	5	16/30	28.0	.016	.032	.280
M18/9	9	16/30	28.0	.016	.032	.358
M18/15	15	16/30	28.0	.016	.032	.445
M16/2*	2	19/.0117	.34	.013	.037	.238
M16/3*	3	19/.0117	.34	.013	.037	.250
M16/4	4	19/.0117	.28	.021	.032	.306
M16/5	5	19/.0117	28.0	.021	.032	.334
M16/7	7	19/.0117	28.0	.021	.032	.364
M16/8	8	19/.0117	28.0	.021	.032	.395
M16/9	9	19/.0117	28.0	.021	.032	.425
M16/12	12	19/.0117	28.0	.021	.032	.479
M16/15	15	19/.0117	28.0	.021	.032	.530
M16/25	25	19/.0117	28.0	.021	.032	.657

*Power-Limited Tray Cable, NEC Type PLTC, 105˚C
**Capacitance Between Conductors

ORDERING INFORMATION: Cut as required.

FLAT BRAID



Flat braided cable is a tight weave of soft drawn tinned copper wire. Originally constructed tubular, it is rolled flat creating a specific width. Excellent for use in shielding short runs and is easily terminated. Also, flat braid is ideal for use as a low impedance ground path. The flexibility gained from the woven construction and the tinned copper conductors gives this material superb durability against harsh marine conditions.

PART NUMBER	AWG	CARRIERS	BRAID CONSTRUCTION # OF ENDS	APPROX. AWG EQUIV.	APPROX. CURRENT CAPACITY (AMPS)*
M.5FB	36	48	384	10	53
M.75FB	36	48	816	7	85
M1FB	36	48	816	7	85
M1.5FB	30	48	528	3	150

*Capacities shown are for bare cable in free air at 30C (86F). These values are intended as a reference guide only.

ORDERING INFORMATION: Cut as required.

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CRYSTAL SERIES AUDIO OXYGEN FREE

Crystal series home theater audio cables are designed for theater and concert hall quality sound reproduction

FEATURES:

- Extra flexible jacket and insulation
- Easy Strip Design
- Oxygen free high strand count copper conductors for pure sound transmission
- More surface area for audio signals

APPLICATIONS:

High end audio transmission, stereo, professional sound and studio requirement.

Construction:

High-strand oxygen free copper conductors, super-flexible polyvinylchloride jacket

Available in 500ft reel in a box dispensing system

PART NUMBER	AWG/# COND.	STRANDING	JACKET COLOR	LISTINGS	AVG. WGT. PER/MFT.
MCS16-2WH	16/2	2 (65 STR BC) Oxygen Free	White	UL, CM, CL3	45 lbs
MCS16-4WH	16/4	4 (65 STR BC) Oxygen Free	White	UL, CM, CL3	65 lbs
MCS14-2WH	14/2	2 (105 STR BC) Oxygen Free	White	UL, CM, CL3	62 lbs

Pacer Group is proud to announce the launch of our new website:

www.PacerGroup.net

Why shop online?

- Exclusive pricing for web members only!
- Access to thousands of products online
- Shop 24 hours a day
- Create custom shopping carts and save them for future duplicate orders and bidding projects
- Track your shipments
- View invoice history
- View quantity price breaks
- Members receive emails regarding new products and promotional pricing

...all with the same superior customer support you have always received from us!

SPEAKER WIRE

Pacer stocks audio cable in gauge sizes ranging from 18 AWG through 12 AWG. Audio cable is insulated with clear PVC. Polarity is distinguished by one tinned copper conductor and one bare copper conductor.

FEATURES:

- Finely stranded tinned and bare copper conductors.
- Clear PVC insulation
- Standard put-up sizes are 100, 500 and 1000 feet
- Voltage Rating: 90V
- Temperature Range: -20˚C to 105˚C

PART NUMBER	AWG	CONDUCTOR STRANDING	NOMINAL O.D.	APPRX. SHIP LBS./M
M18-2ACLR	18	16/.0100	.100 x .187	17
M16-2ACLR	16	26/.0100	.112 x .210	25
M14-2ACLR	14	41/.0100	.120 x .230	35
M12-2ACLR	12	65/.0100	.160 x .335	55

ORDERING INFORMATION: Order by standard put-up size.

3-TO-1 ADHESIVE LINED, HIGH SHRINK RATIO

3- to-1 is a semi-flexible, cross-linked polyolefin tube which possesses a meltable inner lining of adhesive that flows when heated. In addition to insulation and mechanical protection, this tubing provides a moisture-proof seal for encapsulation of wires, splices, breakouts, and components.

FEATURES:

- 3:1 Shrink ratio.
- Continuous operating temperature range of -55˚C to 110˚C.
- Semi-Flexible
- Moisture sealing
- Flame retardant (except clear)

APPLICABLE SPECIFICATIONS:

AMS 3634
MIL-I-23053/4 - Class 3

PART NUMBER	EXPANDED I.D. INCHES	RECOVERED I.D. INCHES	APPLICATION RANGE AWG* (INCHES)	RECOVERED WALL THICKNESS	AVAILABLE COLORS
BEHS-1/8	.125	.023	18	.038	BK, RD, CL
BEHS-3/16	.188	.060	16, 14, 12	.045	BK, RD, CL
BEHS-1/4	.250	.080	12, 10	.047	BK, RD, CL
BEHS-3/8	.375	.135	8, 6	.050	BK, RD, CL
BEHS-1/2	.500	.195	6, 4	.055	BK, RD, CL, YL
BEHS-3/4	.750	.313	4, 2, 1, 1/0	.065	BK, RD, CL, YL
BEHS-1	1.000	.400	1/0, 2/0, 4/0	.075	BK, RD, CL, YL
BEHS-1.5	1.500	.600	N/A	.120	BK
BEHS-2.05	2.050	.800	N/A	.150	BK

ORDERING INFORMATION:

BK = Black, RD = Red, CL = Clear, YL = Yellow
Combine PART NUMBER with COLOR.
EX: BEHS-1/2BK = 1/2" BLACK
All sizes sold in 48" lengths.

PRE-CUT 3-TO-1 ADHESIVE HEAT SHRINK TUBING FOR BATTERY CABLE ASSEMBLIES

PART NUMBER	EXPANDED I.D. INCHES	LENGTH INCHES	AVAILABLE COLORS	PACKAGE QUANTITY
BEHS-1/2-1.5	.500	1.500	BK, RD, YL	10 PCS
BEHS-3/4-1.5	.750	1.500	BK, RD, YL	10 PCS
BEHS-1-1.5	1.000	1.500	BK, RD, YL	10 PCS

HEAVY–WALL TUBING

Heavy–wall heat shrinkable tubing affords maximum reliability for insulating and sealing electrical connections and terminations. BHW is tough and durable, installs quickly and easily, protecting electrical connections in the most adverse conditions including direct burial and submersible installations. BHW is coated internally with a dual purpose thermoplastic liner which flows and encapsulates when heated. When cooled, the tubing offers the mechanical strength of a superior adhesive and the corrosion protection of a high quality mastic.

FEATURES:

- 3:1 Shrink ratio.
- Highly abrasion and impact resistant
- The thermoplastic liner will adhere to PVC, neoprene, polyolefins, EPR, as well as steel, aluminum, and lead
- Easy installation, shrinks when heated over 120˚C

APPLICABLE SPECIFICATIONS:

U.L. 486D - Insulated wire connects for use with underground conductors

C.S.A. C22.2 No. 198 - Underground cable splicing kits

ANSI C119.1 - Sealed insulated underground connector systems rated at 600V

PART NUMBER	EXPANDED I.D. INCHES	RECOVERED I.D. INCHES	APPLICATION RANGE AWG* (INCHES)	RECOVERED WALL THICKNESS
BHW-3/4BK	.750	.240	#6-#1 (.25-.65)	.09
BHW-3/4RD	.750	.240	#6-#1 (.25-.65)	.09
BHW-1.1BK	1.100	.350	1/0-4/0 (.40-.95)	.12
BHW-1.1RD	1.100	.350	1/0-4/0 (.40-.95)	.12

ORDERING INFORMATION:

BK = Black, RD = Red
All sizes sold in 12" lengths.

*Recommended cable size range for single conductor.

2-TO-1 FLEXIBLE, MULTI-PURPOSE

BHS is made from a cross-linked polyolefin offering excellent electrical, chemical and physical properties. BHS is excellent for insulation, harnessing, strain relief and identification purposes.

FEATURES:

- 2:1 Shrink ratio.
- Continuous operating temperature range of -55˚C to 135˚C.
- Flexible
- High tensile strength
- Flame retardant (except clear)
- UL/CSA/MIL approved
- Resistant to common fluids and solvents

APPLICABLE SPECIFICATIONS:

U.L. 224, 125˚C
C.S.A. 125˚C
MIL-I-23053/5

PART NUMBER	EXPANDED I.D. INCHES	RECOVERED I.D. INCHES	RECOVERED WALL THICKNESS	AVAILABLE COLORS
BHS-1/16	.062	.031	.018	BK, RD, CL, WH, GN, BL, YL
BHS-1/8	.125	.063	.020	BK, RD, CL, WH, GN, BL, YL
BHS-3/16	.188	.094	.020	BK, RD, CL, WH, GN, BL, YL
BHS-1/4	.250	.125	.025	BK, RD, CL, WH, GN, BL, YL
BHS-3/8	.375	.188	.025	BK, RD, CL, WH, GN, BL, YL
BHS-1/2	.500	.250	.025	BK, RD, CL, WH, GN, BL, YL
BHS-3/4	.750	.375	.030	BK, RD, CL, WH, GN, YL
BHS-1	1.000	.500	.035	BK, RD, CL
BHS-1.5	1.500	.750	.040	BK
BHS-2	2.000	1.000	.045	BK
BHS-3	3.000	1.500	.050	BK
BHS-4	4.000	2.000	.055	BK

ORDERING INFORMATION:

BK = Black, RD = Red, CL = Clear, WH = White, GN = Green, BL = Blue, YL = Yellow
Combine PART NUMBER with COLOR. EX: BHS-1/2RD = 1/2" Red
All sizes sold in 48" lengths.
*Spools Available Upon Request

TECHNICAL DATA:

Properties	Test Method	Typical Values
Tensile Strength	ASTM D2671	2300PSI
Ultimate Elongation	ASTM D2671	400%
Operating Temp.	—	-55˚C to +135˚C
Min. Shrink Temp.	—	100˚C
Longitudinal Change	ASTM D2671	± 5%
Dielectric Strength	ASTM 876	800 volts/mil
Volume Resistivity	ASTM 876	1016 ohm-cm
Fluid Resistance	MIL-I-23053/5	Good to Excellent
Corrosion Resistance	MIL-I-23053/5	Non-Corrosive
Fungus Resistance	ASTM G21	No Growth
Water Absorption	ASTM D570	0.1% (max)

HEAT SHRINK SIZE SELECTOR GUIDE FOR 2-TO-1 or 3-TO-1 TUBING

WIRE AWG	RECOMMENDED TUBING SIZE
24	1/16"
22	1/16"
20	3/32"
18	1/8"
16	3/16"
14	3/16"
12	3/16"
10	1/4"
8	1/4" OR 3/8"
6	3/8" OR 1/2"
4	1/2" OR 3/4"
2	3/4" OR 1"

NOTE: The chart above is only a general recommendation. Insulation varies with different types of wire, a different diameter of tubing may actually be required.
Also, when choosing a size, consider any components or connectors that may need to be covered.

WIRING DUCT

Wire management, protection and organization becomes simplified with the use of slotted wall wiring duct. The restricted slot design allows wires to be added or removed by simply deflecting the fingers on the side of the duct. The restricted slot then retains the wire preventing their accidental removal. Wiring duct is unique in that wires can be easily added and removed at any time. The cover is flush with the base for mounting in tight areas. Constructed from rigid PVC.

FEATURES:

- Rigid, Non-Flammable Polyvinyl Chloride
- Flammability Rating U.L. 94 V-0
- Temperature up to 50˚C (122˚F)
- Available in White or Light Gray
- Resistant to Acids, Alkalis, Fuels, Oils
- Rounded edges along slots protect wires and hands from abrasion
- Non-slip cover design

APPLICATIONS:

Wiring of electrical control panels where breakouts are frequent and when adding or removing wire is a factor. The superior product to use when organizing large numbers of wires into a small, professionally laid out area.

FOR OPTIMAL USE:

Follow the formula below to determine the maximum number of wires used in various sizes of wiring duct, based on a 50% fill capacity.

$$\text{Number of wires} = \frac{\text{Duct W x H}}{2 \times (\text{Wire O.D.})^2}$$

Cutting wiring duct is easily achieved by using a fine tooth hand saw for small quantities. For large quantities use a fine tooth bandsaw or circular saw.

PART NUMBER INFORMATION

BASE

BG 2 X 4 WH6

- WIDTH
- HEIGHT
- LG6 = LT. GRAY, WH6 = WHITE

COVER

BDC 2 WH6

- WIDTH
- LG6 = LT. GRAY, WH6 = WHITE

PART NUMBER	NOMINAL DUCT SIZES WIDTH INCH	NOMINAL DUCT SIZES HEIGHT INCH	MAX. NUMBER OF 14 AWG (WUL) WIRES	COVER PART NUMBER
BG1X1	1.00	1.00	26	BDC1
BG1X2		2.00	52	
BG2X1		1.00	52	
BG2X2	2.00	2.00	104	BDC2
BG3X3	3.00	3.00	233	BDC3
BG4X2		2.00	207	
BG4X3	4.00	3.00	311	BDC4
BG4X4		4.00	414	

ORDERING INFORMATION:

Add: LG6 = for Lt. Gray
WH6 = for White

Sold in 6 ft. lengths.
Cover is ordered separately.

SPLIT CONDUIT

BSC Split Conduit is an excellent general purpose cable and harness protector. Convoluted tubing provides an efficient method for binding wire harness assemblies, while supplying protection against abrasion, crushing and impact while reducing wire insulation damage. It is economical and quick to install.

Now available in White

FEATURES:

- Protection from heat, sunlight, salt, friction and vibration
- Lightweight
- Operating temperature -20˚C to 93˚C
- UL Flammability V-2
- Longitudinally split for easy installation
- Economical
- Available in black UV resistant or white polyethylene

PART NUMBER BLACK	PART NUMBER WHITE	SIZE	I.D. RANGE (INCHES)	O.D. RANGE (INCHES)	STANDARD PUT-UP
BSC1/4	BSC1/4W	1/4"	.236-.264	.376-.400	100ft
BSC3/8	BSC3/8W	3/8"	.337-.362	.491-.516	100ft
BSC1/2	BSC1/2W	1/2"	.484-.509	.670-.695	100ft
BSC5/8	BSC5/8W	5/8"	.605-.630	.790-.836	100ft
BSC3/4	BSC3/4W	3/4"	.730-.755	.960-.985	100ft
BSC1	BSC1W	1"	1.00-1.039	1.278-1.306	100ft
BSC1.25	N/A	1.125"	1.250-1.276	1.437-1.484	50ft
BSC1.5	BSC1.5W	1.5"	1.500-1.528	1.858-1.925	50ft
BSC2	N/A	2"	1.980-2.035	2.343-2.409	50ft

ORDERING INFORMATION: See standard put-up length.

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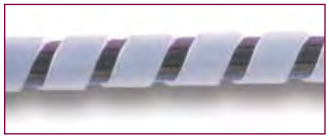
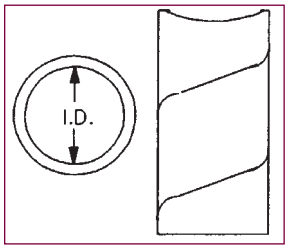
SPIRAL WRAP



Spiral wrap provides abrasion protection for wire and cable insulation as well as hydraulic and pneumatic tubing. Excellent for harnessing multiple cables into a single manageable bundle. Spiral wrap is also handy for kink-proofing all types of tubing. The spiral cut allows for expandability, easy wire breakouts at any point and excellent flexibility. For maximum abrasion resistance, butt the edges together while installing; for flexibility, leave a gap between the edges.



FEATURES:

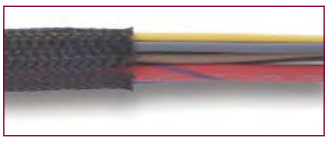
- Available in natural polyethylene and black (UV) weather-resistant polyethylene
- Tool supplied in each package
- Flexible, neat, fast
- Easy wire breakouts
- Operating temperature -20˚C to 80˚C
- Melt temperature 115˚C
- UL recognized
- Resistant to: Acids, Solvents, Gas and Oil

PART NUMBER	FOR NATURAL ADD	FOR (UV) BLACK ADD	SIZE I.D.	BUNDLE DIAMETER RANGE	STANDARD PUT UP
BSW1/8	C	B	.125	1/16" TO 1/2"	100
BSW1/4	C	B	.250	3/16" TO 2"	100
BSW3/8	C	B	.35	5/16" TO 3"	100
BSW1/2	C	B	.500	3/8" TO 4"	100
BSW3/4	C	B	.750	5/8" TO 5"	100
BSW1	C	B	1.000	7/8" TO 6"	100

ORDERING INFORMATION:

For Natural add a "C" EX: BSW1/2B = 1/2" Black UV resistant spiral wrap
For (UV) Black add a "B" Available in 100ft. rolls.

EXPANDABLE SLEEVING



Braided expandable sleeving provides a unique lightweight harnessing solution. Made from P.E.T. (Polyethylene Terephthalate) expandable sleeving will provide continuous abrasion protection while the flexible open weave will not trap heat or moisture. The flexibility and braid design also allow it to be installed over irregular shapes.

FEATURES:

- Continuous abrasion resistance for wires, cables and tubing
- Braided design will not trap heat or moisture
- UL recognized, CSA certified
- Lightweight
- Rated for use up to 257˚F (125˚C)
- UL Flammability V-2

PART NUMBER	NOMINAL I.D. INCHES	NOM. DIAMETER RANGE (INCHES)	STANDARD PUT-UP
B1/4FLEX	1/4"	.094-.250	100ft
B1/2FLEX	1/2"	.250-.750	100ft
B3/4FLEX	3/4"	.500-1.25	100ft
B1.25FLEX	1-1/4"	.750-1.50	100ft
B1.5FLEX	1-1/2"	1.00-2.25	50ft
B1.75FLEX	1-3/4"	1.25-2.75	50ft

ORDERING INFORMATION:

See standard put-up length.

NEW PRODUCT!

WRAPPABLE SPLIT BRAIDED TUBE

FLEXIBLE, SEMI-RIGID WRAPPABLE SPLIT BRAIDED TUBE

F6's unique split, semi-rigid braided construction makes it the ideal solution for situations where ease of installation is of primary importance. The lateral split allows the tube to open up to accommodate a wide variety of bundling requirements, and the semi-rigid braid configuration simply closes around the entire installation without the need for any additional fasteners (velcro, tape, etc.)

The PET braid is lightweight, quiet and flexible. The 25% edge overlap (at nominal diameter) allows coverage around inline plugs, connectors and splices. F6 will bend to a tight radius without distorting or splitting open and, unlike full rigid tubing, will not impair or affect the flexibility of harnesses.

TECHNICAL DATA:

- Material: Polyethlene Terephthalate, Grade F6
- Abrasion Resistance: Excellent
- Temperature Range: 125C Max Cont.(230C Melt Point) -75C Min. Cont.
- Excellent Resistance to: Solvents, Weak Bases, Salts, Hydraulic Fluid, Lube Oil, Esters/Ketones, UV Light, Petroleum, Fungus
- Halogen Free

FEATURES:

- Easy, Cost and Labor Effective Installation
- 25% Edge Overlap
- Cut and Abrasion Resistant
- Colors: B=Black, CW=Clear/White
- More Flexible Than Split Convoluted Or Spiral Wrap
- Soft and Quiet In High Vibration Uses
- Chemically Inert
- Easily cut with hot knife

BLACK

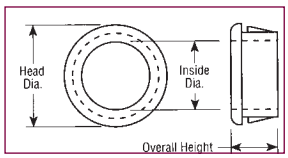
PART NUMBER	NOM. SIZE	LENGTH (FT)
BF6-1/4B-20	1/4"	20
BF6-1/4B-B	1/4"	100
BF6-3/8B-12	3/8"	12
BF6-3/8B-B	3/8"	75
BF6-1/2B-10	1/2"	10
BF6-1/2B-B	1/2"	75
BF6-3/4B-8	3/4"	8
BF6-3/4B-B	3/4"	50
BF6-1B-8	1"	8
BF6-1B-B	1"	50
BF6-1.5B-4	1-1/2"	4
BF6-1.5B-B	1-1/2"	25

CLEAR/WHITE

PART NUMBER	NOM. SIZE	LENGTH (FT)
BF6-1/4CW-20	1/4"	20
BF6-1/4CW-B	1/4"	100
BF6-3/8CW-12	3/8"	12
BF6-3/8CW-B	3/8"	75
BF6-1/2CW-10	1/2"	10
BF6-1/2CW-B	1/2"	75
BF6-3/4CW-8	3/4"	8
BF6-3/4CW-B	3/4"	50
BF6-1CW-8	1"	8
BF6-1CW-B	1"	50
BF6-1.5CW-4	1-1/2"	4
BF6-1.5CW-B	1-1/2"	25

SNAP BUSHINGS

Snap Bushings are used to eliminate sharp edges and to protect wires when passing through holes. Designed to accommodate a variety of panel or box thicknesses, snap bushings will easily "snap" into place and resist up to 35 pounds of pull.



PART NUMBER	MOUNTING HOLE DIAMETER	INSIDE DIAMETER	HEAD DIAMETER	OVERALL HEIGHT
BSB-1/4	1/4"	1/8"	.312	.312
BSB-3/8	3/8"	1/4"	.468	.406
BSB-1/2	1/2"	3/8"	.578	.406
BSB-5/8	5/8"	1/2"	.718	.406
BSB-3/4	3/4"	5/8"	.843	.406
BSB-7/8*	7/8"	11/16"	.953	.453
BSB-1	1"	3/4"	1.125	.453
BSB-1.25	1-1/4"	15/16"	1.359	.453
BSB-1.375	1-3/8"	1	1.468	.453
BSB-1.5	1-1/2"	1-5/16"	1.609	.453
BSB-1.75	1-3/4"	1 3/8"	1.875	.453
BSB-2	2"	1-5/8"	2.125	.453
BSB-2.5	2.5"	1.97"	2.66	.72

* Fits standard 1/2" electrical knockouts.

ORDERING INFORMATION

Order by the piece.

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SKINTOP® II LIQUID TIGHT CONNECTORS

SKINTOP® II Liquid tight, non-metallic strain relief connectors are an easy method of sealing out moisture from electrical boxes or between bulkheads. SKINTOP® II connectors meet the most stringent demands of safety and operational reliability. The internal ratchet mechanism allows the cap to be tightened without twisting the cord as it compresses. An integrated locking system prevents the cap from loosening even when subjected to severe vibration. Used both as a strain relief and liquid tight connector, SKINTOP® II is an all in one connector for panels, switches, control boxes, submersible pumps, and many other applications.

FEATURES:

- International approvals, UL, CSA, VDE, SEV
- NPT Threads and PG Threads
- Continuous operating temperature range of -20˚C to 80˚C.
- Protection up to 70 PSI
- Resistant to common fluids and solvents
- Material: Polyamide - flame retardant and self-extinguishing nylon with neoprene bushing
- Seal: IP 68 (International Protection highest rating, comparable to NEMA 6)
- Available in gray

NPT (Locking Nuts Sold Separately)

PART NUMBER	DIAMETER RANGE	MOUNTING HOLE	MAX. OVERALL LENGTH	THREAD LENGTH
BSLC-3/8	.157-.314	.675	1.692	.563
BSLC-1/2	.236-.476	.825	1.734	.563
BSLC-3/4	.545-.709	1.050	1.969	.563
BSLC-1	.708-.984	1.303	2.283	.563

ORDERING INFORMATION:

Order by the piece. Locking Nuts sold separately.

NPT LOCKING NUTS

PART NUMBER	THREAD SIZE
BSLN-3/8	3/8"
BSLN-1/2	1/2"
BSLN-3/4	3/4"
BSLN-1	1"

- Made from 6/6 gray nylon
- Meets UL flammability 94 V-2
- Maximum temperature rating 125˚C

ORDERING INFORMATION:

Order by the piece.

PG (Locking Nuts Included)

PART NUMBER	DIAMETER RANGE	MOUNTING HOLE	MAX. OVERALL LENGTH	THREAD LENGTH
BSLC-36	.866 - 1.259	1.85	2.519	.512
BSLC-42	1.259 - 1.496	2.126	2.638	.512
BSLC-48	1.456 - 1.732	2.335	2.717	.551

BLUE SEA SYSTEMS

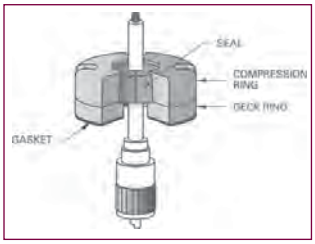
CABLECLAMS

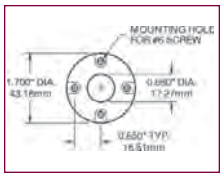
- Waterproof co-axial installation without removing connectors
- Save the expense of removing and replacing connectors
- Avoid poor connections from removing factory connectors

SPECIFICATIONS:

Body Material	Acetal
Seal Material	UV-Stabilized Buna-N Rubber
Screws	Stainless Steel

PART NUMBER	DESCRIPTION
BCLM-1001	CableClam 0.625" Connector Opening
BCLM-1002	CableClam 0.825" Connector Opening
BCLM-1003	CableClam 1.385" Connector Opening





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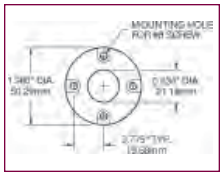

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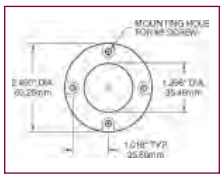

1003

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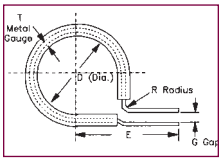
STAINLESS-STEEL CUSHION CLAMPS

Stainless-Steel Cushion Clamps are designed for mounting wires, cables or hoses where weight and vibration are a factor. Stainless-steel clamps offer strength and durability. BSSC are composed of 321 stainless steel with black neoprene cushions for protection of harnesses or hoses. Neoprene cushions also serve to dampen vibrations. The strength and corrosion resistance of stainless-steel combined with the protection of neoprene provide a long–term, reliable mounting solution.



FEATURES:

- Stainless steel meets MIL-S-5059/AMS5510
- 1/4" Mounting hole
- Sizes from 1/4" to 4"
- General purpose neoprene AMS3209
- 1/2" Width for strength

ADVANTAGES OVER ALUMINUM:

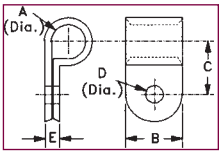
Stainless-steel will not pit and become brittle with prolonged exposure to salt water environments.

PART NUMBER	SIZE (INCHES)	D	E	G	R	T	WIDTH
BSSC04-1/4	1/4"	.250	.529	.062	.062	.032	.500
BSSC06-3/8	3/8"	.375	.592	.062	.062	.032	.500
BSSC08-1/2	1/2"	.500	.654	.062	.062	.032	.500
BSSC10-5/8	5/8"	.625	.780	.062	.109	.032	.500
BSSC12-3/4	3/4"	.750	.842	.062	.109	.032	.500
BSSC14-7/8	7/8"	.875	.889	.062	.109	.032	.500
BSSC16-1	1"	1.000	.951	.062	.109	.032	.500
BSSC20-1.25	1-1/4"	1.250	1.092	.094	.125	.032	.500
BSSC24-1.5	1-1/2"	1.500	1.217	.094	.125	.032	.500
BSSC28-1.75	1-3/4"	1.750	1.342	.094	.125	.032	.500
BSSC32-2	2"	2.000	1.475	.125	.125	.040	.500
BSSC40-2.5	2-1/2"	2.500	1.728	.125	.125	.040	.500
BSSC44-2.75	2-3/4"	2.750	N/A	.125	.125	.040	.500
BSSC48-3	3"	3.000	1.976	.125	.125	.040	.500
BSSC64-4	4"	4.000	N/A	.125	.125	.040	.500

ORDERING INFORMATION: Order by the piece.

NYLON C-CLAMPS

Nylon C-Clamps are available in natural 6/6 nylon or heat/UV stabilized black nylon. All sizes from 3/16" and larger are manufactured in durable 1/2" width. Mounted with a #10 screw BCCH C-Clamps are an economical, fast and efficient mounting system for a wide variety of materials including cables, harnesses, and hoses.



FEATURES:

- Stocked in Natural and Heat/UV Stabilized Black 6/6 Nylon
- 1/2" Width for strength
- Sizes from 1/8" to 1-1/2"

PART NUMBER (NATURAL)	PART NUMBER (BLACK)	SIZE	A	B	C	D	E
BCCH02-C	BCCH02-C0	1/8"	.114	.375	.333	.167	.257
BCCH03-C	BCCH03-C0	3/16"	.172	.500	.375	.203	.241
BCCH04-C	BCCH04-C0	1/4"	.234	.500	.407	.203	.241
BCCH05-C	BCCH05-C0	5/16"	.297	.500	.445	.203	.280
BCCH06-C	BCCH06-C0	3/8"	.359	.500	.484	.203	.291
BCCH08-C	BCCH08-C0	1/2"	.484	.500	.560	.203	.272
BCCH10-C	BCCH10-C0	5/8"	.609	.500	.637	.203	.290
BCCH12-C	BCCH12-C0	3/4"	.734	.500	.726	.203	.326
BCCH14-C	BCCH14-C0	7/8"	.859	.500	.833	.203	.310
BCCH16-C	BCCH16-C0	1"	.984	.500	.881	.203	.292
BCCH20-C	BCCH20-C0	1-1/4"	1.227	.500	1.010	.203	.339
*BCCH24-C	*BCCH24-C0	1-1/2"	1.500	.500	1.114	.203	.218

ORDERING INFORMATION: Available in 100pcs bags.

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CABLE TIES

Cable ties are the most widely used and versatile bundling and harnessing material available. Pacer offers a wide selection of both size and capacity. Cable ties are stocked in natural 6/6 nylon and weather resistant, UV stabilized, black 6/6 nylon. Sizes range from ties with a maximum of 1 inch diameter to ties that have a diameter up to 9 inches.

STAINLESS STEEL *BARB TY*®

Made from black, weather-resistant, UV stabilized 6/6 nylon, or natural 6/6 nylon ***BARB TY***® is an ideal high-end wire bundling solution. The highly corrosion resistant 316 stainless Steel "barb" offers consistent, reliable performance. The high tensile strength of these ties exceeds industry and military (MIL-S-23190E) standards.

PHYSICAL PROPERTIES OF NYLON CABLE TIES

DESIGN CRITERIA	NATURAL 6/6 NYLON	WEATHER RESISTANT 6/6 NYLON
TENSILE STRENGTH 73˚C (psi)	11,200	9,000
COLOR	NATURAL	BLACK
UL FLAMMABILITY	UL 94V-2(1/16")	UL 94V-2(1/16")
WATER ABSORPTION (24 Hrs)	1.2%	1.2%
ULTRAVIOLET LIGHT RESISTANCE	POOR	GOOD
MAX. CONTINUOUS USE TEMP.	185˚F	185˚F
MIN. CONTINUOUS USE TEMP.	-40˚F	-40˚F

PART NUMBER SYSTEM

CTMR 2 S 0

CABLE TIE TYPE
CT = Standard
CTB = Barb Ty
CTMR = Mounting Ring
CMLT = Stainless Steel

APPROX. BUNDLE DIAMETER
1 = 1"
1.5 = 1.5"
2 = 2"
3 = 3"
4 = 4"

LOOP TENSILE STRENGTH
M = Mini (18 lbs.)
I = Intermediate (30/40 lbs.)
S = Standard (50 lbs.)
H = Heavy Duty (120 lbs.)
EH = Extra Heavy Duty (250 lbs.)

Designates Black (UV) Cable Ties

STANDARD

LENGTH (INCHES)	PART NUMBER NATURAL ALL NYLON	PART NUMBER NATURAL *BARB TY*®	PART NUMBER BLACK UV RESIST. ALL NYLON	PART NUMBER BLACK UV RESIST. *BARB TY*®	BUNDLE DIAMETER (INCHES)	CROSS SECTION	MAX. TENSILE STRENGTH (LBS.)	PACKAGE QUANTITY
3.9	CT1M-C	CTB1M-C	CT1M-C0	CTB1M-C0	.87	Min.	18	100
3.9	CT1M-M	CTB1M-M	CT1M-M0	CTB1M-M0	.87	Min.	18	1000
5.6	CT1.5I-C	CTB1.5I-C	CT1.5I-C0	CTB1.5I-C0	1.38	Inter.	40	100
5.6	CT1.5I-M	CTB1.5I-M	CT1.5I-M0	CTB1.5I-M0	1.38	Inter.	40	1000
7.4	CT2S-C	CTB2S-C0	CT2S-C0	CTB2S-C0	1.88	Std.	50	100
7.4	CT2S-M	CTB2S-M	CT2S-M0	CTB2S-M0	1.88	Std.	50	1000
11.5	CT3S-C	CTB3S-C	CT3S-C0	CTB3S-C0	3.00	Std.	50	100
11.5	CT3S-M	CTB3S-M	CT3S-M0	CTB3S-M0	3.00	Std.	50	1000
11.4	CT3H-L	CT3H-L	CT3H-L0	CTB3H-L0	3.00	Hwy.	120	50
11.4	CT3H-TL	CT3H-TL	CT3H-TL0	CTB3H-TL0	3.00	Hwy.	120	250
14.5	CT4S-C	CTB4S-C	CT4S-C0	CTB4S-C0	4.00	Std.	50	100
14.5	CT4S-M	CTB4S-M	CT4S-M0	CTB4S-M0	4.00	Std.	50	1000
14.5	CT4H-L	CTB4H-L	CT4H-L0	CTB4H-L0	4.00	Heavy	120	50
14.5	CT4H-TL	CTB4H-TL	CT4H-TL0	CTB4H-TL0	4.00	Heavy	120	250
24.7	CT7H-L	CTB7LH-L	CT7H-L0	CTB7LH-L0	7.00	Lt. Heavy	120	50
30.6	CT9H-L	CTB9LH-L	CT9H-L0	CTB9LH-L0	9.00	Lt. Heavy	120	50

MOUNTING RING CABLE TIES

3.9	CTMR1M-C	CTMR1M-C0	.87	Min.	18	100
3.9	CTMR1M-M	CTMR1M-M0	.87	Min.	18	1000
5.6	CTMR1.5I-C	CTMR1.5I-C0	1.38	Inter.	40	100
5.6	CTMR1.5I-M	CTMR1.5I-M0	1.38	Inter.	40	1000
7.4	CTMR2S-C	CTMR2S-C0	1.88	Std.	50	100
7.4	CTMR2S-M	CTMR2S-M0	1.88	Std.	50	1000
14.5	CTMR4S-C	CTMR4S-C0	4.00	Std.	50	100
14.5	CTMR4S-M	CTMR4S-M0	4.00	Std.	50	1000
14.5	CTMR4H-L	CTMR4H-L0	4.00	Hwy.	120	50
14.5	CTMR4H-TL	CTMR4H-TL0	4.00	Hwy.	120	250

ORDERING INFORMATION: Order by standard package quantity.

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STAINLESS STEEL CABLE TIES

Stainless steel cable ties offer reliable, long-lasting performance in severe environmental conditions. Perfect for outdoor applications, they offer excellent resistance to abrasion, weathering, corrosion and temperature extremes. Stainless steel cable ties have fully rounded sides that are safe to handle and safe for wires. For added abrasion protection, black neoprene rubber cushion sleeves are available on 100 ft. reels.

- Fully radiused sides
- 316 Stainless Steel
- Fast and easy to install, by hand or with tools (see page 39)
- Standard cross section ties are MIL-S-23190

TOOLS

VT-HTMT Used to tension and coil the tail of the tie
VT-STZMT Used to tension and cut-off excess tie

ORDERING INFORMATION:

Order by standard package quantity.

LENGTH (INCHES)	PART NUMBER	WIDTH	MAX. BUNDLE NUMBER	MAX. TENSILE STRENGTH	PACKAGE QUANTITY
5.0	CMLT1S-CP316	.18	1.00	100	100
7.9	CMLT2S-CP316	.18	2.00	100	100
10.2	CMLT2.7S-CP316	.18	2.7	100	100
14.2	CMLT4S-CP316	.18	4.00	100	100
14.3	CMLT4H-LP316	.31	4.00	250	50
20.4	CMLT6S-CP316	.18	6.00	100	100

CUSHION SLEEVE

- Non-conductive insulator between tie and bundle
- Black, neoprene rubber

PART NUMBER	FOR TIE WIDTH	SLEEVE WIDTH	STD. PKG.
CM-PCSS-CR	.18	.33	100 ft. Reel
CM-PCSH-CR	.31	.47	100 ft. Reel

CABLE TIE MOUNTS

Pacer offers three styles of cable tie mounts.

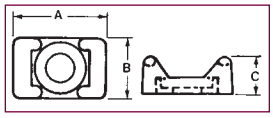
CTM are screw fastened nylon cradles which provide maximum stability and rigidity to the wire bundle. They are available in natural or ultraviolet resistant black.

CTMTP are screw fastened multiple tie plates. These plates allow multiple wire bundles to be quickly fastened in a neat, organized fashion. These plates can be especially useful when separating A/C cables to avoid heat build-up between conductors.

CABM are 4-way adhesive backed mounts. Adhesive mounts are fast and easy to use. Peel the backing paper off and apply to any clean, dry, smooth, grease-free surface. These mounts are composed of ABS plastic and have a rubber backing.

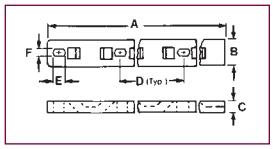
SCREW DOWN MOUNTS

PART NUMBER NATURAL	PART NUMBER BLACK	PACKAGE QUANTITY	A	B	C	USED WITH CABLE TIES*	MOUNT METHOD
CTM1S6	CTM1S6BK	100	.505	.325	.230	M	#6 Screw
CTM2S8	CTM2S8BK	100	.585	.375	.270	M,I,S	#8 Screw
CTM3S10	CTM3S10BK	100	.875	.625	.380	M,I,S,H	#10 Screw
	CTMEH25BK	25	1.65	.740	.610	EH	1/4" Screw



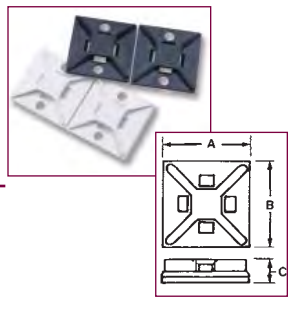
MULTIPLE TIE MOUNTING PLATES

PART NUMBER NATURAL	PACKAGE QUANTITY	A	B	C	D	E	F	USED WITH CABLE TIES*	MOUNT METHOD
CTMTP3-10	PC	4.25	.50	.125	1.25	.30	.20	M,I,S	#10 Screw
CTMTP6-10	PC	9.59	.62	.203	1.50	.30	.20	M,I,S,H	#10 Screw



ADHESIVE BACKED MOUNTS

PART NUMBER NATURAL	PART NUMBER BLACK	PACKAGE QUANTITY	A	B	C	USED WITH CABLE TIES*	MAX. STATIC LOAD LBS.
CABM.5		100	.50	.50	.195	M	.13
CABM.75	CABM.75BK	100	.75	.75	.195	M, I	.30
CABM1	CABM1BK	100	1.00	1.00	.204	M, I, S	.50



ORDERING INFORMATION:

Order by standard package quantity.
*Cable tie cross section sizes: M = Miniature, I = Intermediate, S = Standard, LH = Light Heavy, H = Heavy, EH = Extra Heavy

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3M DUAL LOCK

3M Dual Lock is a 1" wide, self-adhering, reclosable fastening system. 3M stem type locking system is five times stronger than conventional hook and loop fasteners. The adhesive backing will adhere instantly to many surfaces. When pressing together, an "audible" snap assures secure closure.

Part Number: **BDLOCK-BK** 2 - 1" wide rolls, 1@170 stems, 1@400 stems. 4.9 yards each.

ORDERING INFORMATION:
Available in mini packs of 4.9 yards.

ELECTRICAL TAPE

3M Super 33+

Scotch Brand Super 33+ is a premium-grade, 7-mil tape that applies well at -18˚C/0˚F and has an operating temperature range up to 105˚C/220˚F. Use Super 33+ as a primary insulation for wire and cable splices up to 600V and for fixture and wire splices up to 1 kV.

FEATURES:
- 7-mil (18mm) Thick
- UL Listed, CSA Certified
- Resists: abrasion, UV rays, moisture, alkalis, solvents
- -18˚C/0˚F to 105˚C/220˚F
- 3/4" x 66"

Part Number: **ETBLK105**

3M Scotch 35

3M Scotch 35 color coded, American made, electrical tapes are general purpose insulating tapes. They are economical and durable with excellent resistance to a wide range of contaminant's and weather conditions.

FEATURES:
- 7-mil (18mm) Thick
- Indoor and Outdoor use
- For use up to 80˚C/176˚F
- Flame retardant
- UL Listed, CSA Certified
- 3/4" x 66"
- Resists: abrasion, UV rays,moisture,alkalis, solvents

PART NUMBER	COLOR
ETBRN80	BROWN
ETRED80	RED
ETORG80	ORANGE
ETYEL80	YELLOW
ETGRN80	GREEN
ETBLU80	BLUE
ETVIO80	VIOLET
ETGRY80	GRAY
ETWHT80	WHITE

3M Temflex

3M Temflex is an economical, general purpose tape for indoor/outdoor use.

Part Number: **ETBLK80**

3M 130C Linerless Rubber Splicing Tape

3M 130C is a highly conformable linerless rubber (EPR), high-voltage insulating tape formulated to provide excellent thermal dissipation of splice heat. Designed for use in splicing and terminating wires and cables, moisture sealing electrical connections, bus bar insulating, and end-sealing cables.

FEATURES:
- Indoor and Outdoor use
- Flame retardant
- Rated for use up to 90˚C continuous, short term overload service to 130˚C
- Provides immediate moisture seals and void-free buildups
- Used for low and high-voltage (through 69 kV) applications
- Meets requirements of HHI-553C, Grade A & B and ASTM D-4388, Type III

PART NUMBER	DESCRIPTION
ET130C-1	1" x 30'
ET130C-1.5	1.5" x 30'

PART NUMBER SYSTEM

T NF 14 - 10 R

TERMINAL TYPE
T = RING, FORK or PIN
TAE = TINNED CLOSED END LUGS
TBS = BUTT SPLICE
TC, TL, TF = BATTERY TERMINALS
TD = DISCONNECTS
TB = BULLETS
TL = BRAZED LUGS

INSULATION
BLANK = NON-INSULATED
E = ADHESIVE HEAT SHRINK
N = NYLON
NF = NYLON, FUNNEL ENTRY w/INSULATION SLEEVE
V = VINYL, FUNNEL ENTRY

WIRE RANGE
18 = #22-18 AWG
14 = #16-14 AWG
10 = #12-10 AWG
8 = #8 AWG
6 = #6 AWG
4 = #4 AWG
2 = #2 AWG
1 = #1 AWG
1/0 = #0
2/0 = #00
3/0 = #000
4/0 = #0000

STUD SIZE
6 = #6
8 = #8
10 = #10
14 = 1/4"
56 = 5/16"
38 = 3/8"
12 = 1/2"

TAB SIZE (DISCONNECTS)
110 = .110 x .032
187 = .187 x .032
250 = .250 x .032

TONGUE CONFIGURATION
FF = FLANGED FORK
P = PIN
R = RING
SLF = SHORT LOCKING FORK DISCONNECT CONFIG.
A = ADAPTER
FI = FULLY INSUL.(FEMALE)
FIM = FULLY INSUL.(MALE)
M = MALE
PB = PIGGYBACK
BLANK = FEMALE

NYLON INSULATED TERMINALS WITH INSULATION GRIP SLEEVE

Pacer's premium non-sealing terminal. The 3-piece design allows for superior crimping and insulation grip. Terminals are constructed from pure annealed, electroplated tin copper, with a brazed seam and a serrated inner barrel. A permanently attached, funnel shaped, tin-plated brass sleeve encompasses the barrel and extends over the wire to be used as an insulation grip. The terminal is insulated with durable, abrasion resistant nylon. Operating Temperature: 105˚C/600V

VINYL INSULATED TERMINALS

Vinyl terminals combine the top quality construction of our non-insulated terminals with a specially designed PVC (polyvinyl chloride) insulation. The color coded vinyl is funneled to speed and simplify wire insertion without fraying strands. The vinyl insulation extends beyond the barrel to be crimped, forming an insulation support. Operating Temperature: 105˚C/600V

NON-INSULATED TERMINALS

Non-insulated terminals are constructed from pure annealed electroplated tin copper, with a serrated inner barrel. The bell mouth entry eases installation of conductors. One piece construction provides an economical, high quality terminal. Non-insulated connectors are excellent to use if crimping and soldering a connection is necessary. They can also be handy if space constraints are a factor. Insulate these terminals with standard or adhesive heat shrink tubing.

PERFORMANCE REQUIREMENTS FOR #22 - #10 AWG TERMINALS ON COPPER WIRE:

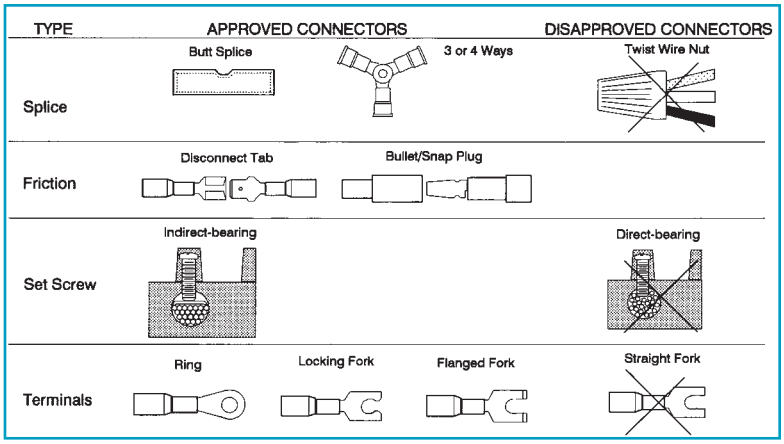
MIL-T-7928G

AWG	22	20	18	16	14	12	10
A	9	11	16	22	32	45	55
B	7	-	7	8	5	5.5	4
C	15	19	38	50	70	110	150

UL 486A

AWG	22	20	18	16	14	12	10
D	9	12	17	16	30	35	50
C	8	13	20	30	50	70	80

A = Test Current (AMPS)
B = Voltage Drop (MV) Max Allowable
C = Min. Tensile Strength (lbs) Pull-out force of the crimped terminal
D = Test Current for Max 50C Rise (AMPS)



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HEAT SHRINKABLE TERMINALS

Heat shrinkable terminals have quickly become the most requested connector among marine professionals. The ease and speed by which these connectors create a fully environmentally sealed connection is unmatched. Heat shrink terminals are constructed from high-grade, fully annealed, tinned plated copper with a brazed barrel seam. The insulation is a tough, quick-to-shrink polyolefin.

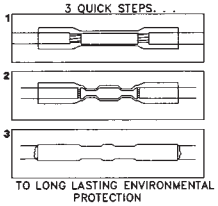
FEATURES:

- Protects terminations from water, condensation, salt spray and corrosion
- Added vibration protection in rugged environments
- Available in gauge sizes 22 through 8
- Provides strain relief
- Cost effective
- Dielectric Strength: 900V/mil
- Shrink Ratio: Approx. 3 to 1 at 135˚C
- Operating Temperature: -55˚C to 125˚C
- Volume Resistivity: 1015 ohm-cm3

WIRE RANGE	STUD SIZE	PART NUMBER	INSUL. COLOR	STANDARD PACKAGE
BUTT SPLICES				
#22-18 AWG	N/A	TBSE18	RED	25, 50, 100, 500, 1000
#16-14 AWG	N/A	TBSE14	BLUE	25, 50, 100, 500, 1000
#12-10 AWG	N/A	TBSE10	YELLOW	25, 50, 100, 500
#8 AWG	N/A	TBSE8	PINK	10, 25, 50, 100, 250
RING TERMINALS				
#22-18 AWG	#6	TE18-6R	RED	25, 50, 100, 500, 1000
	#8	TE18-8R	RED	25, 50, 100, 500, 1000
	#10	TE18-10R	RED	25, 50, 100, 500, 1000
	1/4"	TE18-14R	RED	25, 50, 100, 500, 1000
	5/16"	TE18-56R	RED	25, 50, 100, 500, 1000
	3/8"	TE18-38R	RED	25, 50, 100, 500, 1000
#16-14 AWG	#6	TE14-6R	BLUE	25, 50, 100, 500, 1000
	#8	TE14-8R	BLUE	25, 50, 100, 500, 1000
	#10	TE14-10R	BLUE	25, 50, 100, 500, 1000
	1/4"	TE14-14R	BLUE	25, 50, 100, 500, 1000
	5/16"	TE14-56R	BLUE	25, 50, 100, 500, 1000
	3/8"	TE14-38R	BLUE	25, 50, 100, 500, 1000
	1/2"	TE14-12R	BLUE	25, 50, 100, 500, 1000
#12-10 AWG	#6	TE10-6R	YELLOW	25, 50, 100, 500
	#8	TE10-8R	YELLOW	25, 50, 100, 500
	#10	TE10-10R	YELLOW	25, 50, 100, 500
	1/4"	TE10-14R	YELLOW	25, 50, 100, 500
	5/16"	TE10-56R	YELLOW	25, 50, 100, 500
	3/8"	TE10-38R	YELLOW	25, 50, 100, 500
	1/2"	TE10-12R	YELLOW	25, 50, 100, 500
#8 AWG	#10	TE8-10R	PINK	10, 25, 50, 100, 250
	1/4"	TE8-14R	PINK	10, 25, 50, 100, 250
	5/16"	TE8-56R	PINK	10, 25, 50, 100, 250
	3/8"	TE8-38R	PINK	10, 25, 50, 100, 250
	1/2"	TE8-12R	PINK	10, 25, 50, 100, 250
LOCKING "SNAP" FORKS				
#22-18 AWG	#6	TE18-6SLF	RED	25, 50, 100, 500, 1000
	#8	TE18-8SLF	RED	25, 50, 100, 500, 1000
	#10	TE18-10SLF	RED	25, 50, 100, 500, 1000
#16-14 AWG	#6	TE14-6SLF	BLUE	25, 50, 100, 500, 1000
	#8	TE14-8SLF	BLUE	25, 50, 100, 500, 1000
	#10	TE14-10SLF	BLUE	25, 50, 100, 500, 1000
	1/4"	TE14-14SLF	BLUE	25, 50, 100, 500, 1000
#12-10 AWG	#6	TE10-6SLF	YELLOW	25, 50, 100, 500
	#8	TE10-8SLF	YELLOW	25, 50, 100, 500
	#10	TE10-10SLF	YELLOW	25, 50, 100, 500
	1/4"	TE10-14SLF	YELLOW	25, 50, 100, 500
DISCONNECTS	FEMALE	MALE		
#22-18 AWG	TDE18-250FI	TDE18-250FIM	RED	25, 50, 100, 500, 1000
#16-14 AWG	TDE14-250FI	TDE14-250FIM	BLUE	25, 50, 100, 500, 1000
#12-10 AWG	TDE10-250FI	TDE10-250FIM	YELLOW	25, 50, 100, 500
BULLETS				
#16-14 AWG	TBRE14-156	TBPE14-156	BLUE	25, 50, 100, 500, 1000

ORDERING INFORMATION:

Order by standard package.



INSTALLATION:

STEP 1: Strip wire 0.3" for butt splices or .25" for ring terminals. Insert into crimp barrel.
STEP 2: Crimp using the 3M TR-490 or any tool for pre-insulated terminals.
STEP 3: Heat splice or terminal from the crimped section out to the wire, with a heat source until tubing recovers.

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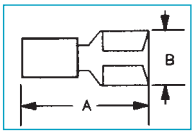
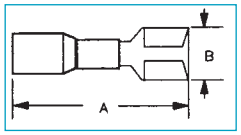
DISCONNECTS

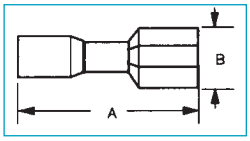
Also known as quick connect or slip-on connectors. Connection is accomplished by fitting the female part over the male tab. Holding force is excellent due to an indentation on the tongue of the female part which locks into a hole on the male tab. Available in non-insulated brazed seam, partially insulated vinyl (covers wire barrel only) or fully insulated nylon.



Non-Insulated Female/Male



Nylon Partially Insulated



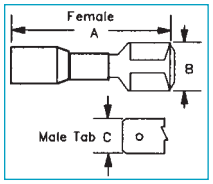
Nylon Fully Insulated

NON-INSULATED FEMALE/MALE

WIRE RANGE	TAB SIZE	FEMALE	MALE	INSUL. COLOR	STANDARD A	STANDARD B	PACKAGE
22-18 AWG	.187 x .032	TD18-187	—	N/A	.59	.23	50, 100, 500, 1000
	.250 x .032	TD18-250	TD18-250M	N/A	.66	.29	50, 100, 500, 1000
16-14 AWG	.187 x .032	TD14-187	—	N/A	.59	.23	50, 100, 500, 1000
	.250 x .032	TD14-250	TD14-250M	N/A	.66	.29	50, 100, 500, 1000
12-10 AWG	.250 x .032	TD10-250	TD10-250M	N/A	.76	.29	50, 100, 500
NYLON PARTIALLY INSULATED							
22-18 AWG	.250 X .032	TDNF18-250	TDNF18-250M	RED	.89	.29	50, 100, 500, 1000
16-14 AWG	.250 X .032	TDNF14-250	TDNF14-250M	BLUE	.89	.29	50, 100, 500, 1000
12-10 AWG	.250 X .032	TDNF10-250	TDNF10-250M	YELLOW	1.04	.29	50, 100, 500
NYLON FULLY INSULATED							
22-18 AWG	.250 X .032	TDNF18-250FI	TDNF18-250FIM	RED	.84/.97	.35/.40	50, 100, 500, 1000
16-14 AWG	.250 X .032	TDNF14-250FI	TDNF14-250FIM	BLUE	.84/.97	.35/.40	50, 100, 500, 1000
12-10 AWG	.250 X .032	TDNF10-250FI	TDNF10-250FIM	YELLOW	1.07/1.17	.36/.40	50, 100, 500

*Dimension "B" refers to female disconnects only. Right angle disconnects available upon request.

PIGGYBACK DISCONNECTS



Piggybacks are female and male tabs combined into one disconnect. Primarily used to allow additional circuits to be added to existing equipment without costly rework. Available in vinyl insulation only.

WIRE RANGE	TAB SIZE	PART NUMBER	A	B	C	STANDARD PACKAGE
*22-18 AWG	.250 x .032	TDV18-250PB	.87	.30	.25	50, 100, 500, 1000
16-14 AWG	.250 x .032	TDV14-250PB	.87	.30	.25	50, 100, 500, 1000
12-10 AWG	.250 x .032	TDV10-250PB	1.01	.30	.25	50, 100, 500

DISCONNECT ADAPTERS

Part Number: TD250A
Part Number: TD250FMF

BULLET CONNECTORS

Bullet Connectors have advantages similar to disconnects, providing a reliable in-line connection. Terminals are made to close tolerances to produce holding friction when parts are mated.

WIRE RANGE	SIZE	PLUG PART NUMBER	RECEPTACLE PART NUMBER	INSULATION COLOR	STANDARD PACKAGE
22-18 AWG	.156	TBPV18-156	TBRV18-156	RED	50, 100, 500, 1000
22-18 AWG	.180	TBPV18-180	TBRV18-180	RED	50, 100, 500, 1000
16-14 AWG	.156	TBPV14-156	TBRV14-156	BLUE	50, 100, 500, 1000
16-14 AWG	.180	TBPV14-180	TBRV14-180	BLUE	50, 100, 500, 1000

ORDERING INFORMATION:

Order by standard package.

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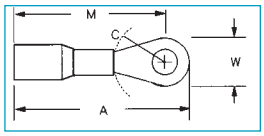
RING TERMINALS

Rings terminals are available in three configurations; nylon insulation grip, funnel entry vinyl, and non-insulated terminals. Ring terminals are the most secure type of tongue style because they cannot slip off a screw or stud. They should be used on all critical circuits.



WIRE RANGE	STUD SIZE	NYLON INSULATED	VINYL INSULATED	NON-INSULATED	INSUL. COLOR	A*	W	C	M*	STANDARD PACKAGE
22-18 AWG	#6	TNF18-6R	TV18-6R	T18-6R	RED	.80	.25	.20	.69	50, 100, 500, 1000
	#8	TNF18-8R	TV18-8R	T18-8R	RED	.91	.31	.27	.75	50, 100, 500, 1000
	#10	TNF18-10R	TV18-10R	T18-10R	RED	.91	.31	.27	.75	50, 100, 500, 1000
	1/4"	TNF18-14R	TV18-14R	T18-14R	RED	1.11	.46	.38	.88	50, 100, 500, 1000
	5/16"	TNF18-56R	TV18-56R	T18-56R	RED	1.11	.46	.38	.88	50, 100, 500, 1000
	3/8"	TNF18-38R	TV18-38R	T18-38R	RED	1.19	.53	.43	.93	50, 100, 500, 1000
16-14 AWG	#6	TNF14-6R	TV14-6R	T14-6R	BLUE	.92	.31	.27	.75	50, 100, 500, 1000
	#8	TNF14-8R	TV14-8R	T14-8R	BLUE	.92	.31	.27	.75	50, 100, 500, 1000
	#10	TNF14-10R	TV14-10R	T14-10R	BLUE	.92	.31	.27	.75	50, 100, 500, 1000
	1/4"	TNF14-14R	TV14-14R	T14-14R	BLUE	1.13	.46	.38	.88	50, 100, 500, 1000
	5/16'	TNF14-56R	TV14-56R	T14-56R	BLUE	1.13	.46	.38	.88	50, 100, 500, 1000
	3/8"	TNF14-38R	TV14-38R	T14-38R	BLUE	1.21	.53	.43	.93	50, 100, 500, 1000
	1/2"	TNF14-12R	TV14-12R	T14-12R	BLUE	1.31	.71	.50	1.10	50, 100, 500, 1000
12-10 AWG										
	#6	TNF10-6R	TV10-6R	T10-6R	YELLOW	1.06	.31	.33	.91	50, 100, 500
	#8	TNF10-8R	TV10-8R	T10-8R	YELLOW	1.06	.31	.33	.91	50, 100, 500
	#10	TNF10-10R	TV10-10R	T10-10R	YELLOW	1.06	.31	.33	.91	50, 100, 500
	1/4"	TNF10-14R	TV10-14R	T10-14R	YELLOW	1.24	.52	.40	.98	50, 100, 500
	5/16"	TNF10-56R	TV10-56R	T10-56R	YELLOW	1.24	.52	.40	.98	50, 100, 500
	3/8"	TNF10-38R	TV10-38R	T10-38R	YELLOW	1.32	.58	.44	1.03	50, 100, 500
	1/2"	TNF10-12R	TV10-12R	T10-12R	YELLOW	1.46	.71	.50	1.10	50, 100, 500

* A and M dimensions apply to insulated terminals only.

ORDERING INFORMATION: Order by standard package.

FORK TERMINALS

Pacer stocks two variations of the standard "fork" or "spade" terminal. Marine applications require a means of securing the terminal to a post or screw beyond just the pressure of the screw to the terminal itself. Two innovations to the straight fork have been made, locking forks or "Snap Spades" and flanged forks. Locking forks have projections inside the fork causing the connector to "snap" onto the screw or bolt holding the terminal captive. Flanged forks have the ends turned up, holding the terminal captive should the screw loosen. Functionally, fork terminals are great to use in rework situations where it can be difficult to completely remove the fastener. Pacer has captive forks available in nylon funnel entry with insulation grip, funnel entry vinyl, and brazed seam non-insulated.

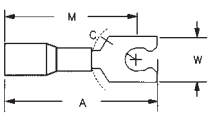
WIRE RANGE	STUD SIZE	NYLON INSULATED	VINYL INSULATED	NON-INSULATED	INSUL. COLOR	A*	W	C	M*	STANDARD PACKAGE
SHORT LOCKING FORKS										
22-18 AWG	#6	TNF18-6SLF	TV18-6SLF	T18-6SLF	RED	.80	.25	.20	.68	50, 100, 500, 1000
	#8	TNF18-8SLF	TV18-8SLF	T18-8SLF	RED	.85	.29	.23	.73	50, 100, 500, 1000
	#10	TNF18-10SLF	TV18-10SLF	T18-10SLF	RED	.86	.33	.23	.73	50, 100, 500, 1000
16-14 AWG	#6	TNF14-6SLF	TV14-6SLF	T14-6SLF	BLUE	.80	.25	.20	.68	50, 100, 500, 1000
	#8	TNF14-8SLF	TV14-8SLF	T14-8SLF	BLUE	.85	.29	.23	.73	50, 100, 500, 1000
	#10	TNF14-10SLF	TV14-10SLF	T14-10SLF	BLUE	.86	.33	.23	.73	50, 100, 500, 1000
	1/4"	TNF14-14SLF	TV14-14SLF	T14-14SLF	BLUE	.95	44	.33	.79	50, 100, 500, 1000
12-10 AWG	#6	TNF10-6SLF	TV10-6SLF	T10-6SLF	YELLOW	.89	.25	.20	.77	50, 100, 500
	#8	TNF10-8SLF	TV10-8SLF	T10-8SLF	YELLOW	.94	.29	.28	.82	50, 100, 500
	#10	TNF10-10SLF	TV10-10SLF	T10-10SLF	YELLOW	.95	.33	.28	.82	50, 100, 500
	1/4"	TNF10-14SLF	TV10-14SLF	T10-14SLF	YELLOW	1.04	.45	.34	.88	50, 100, 500

WIRE RANGE	STUD SIZE	NYLON* INSULATED	INSUL. COLOR	A*	W	C	M*	STANDARD PACKAGE
FLANGED FORKS								
22-18 AWG	#6	TN18-6FF	RED	.78	.28	.20	.63	50, 100, 500, 1000
	#8	TN18-8FF	RED	.89	.31	.23	.64	50, 100, 500, 1000
	#10	TN18-10FF	RED	.89	.38	.23	.64	50, 100, 500, 1000
16-14 AWG	#6	TN14-6FF	BLUE	.78	.28	.20	.63	50, 100, 500, 1000
	#8	TN14-8FF	BLUE	.89	.31	.23	.64	50, 100, 500, 1000
	#10	TN14-10FF	BLUE	.89	.38	.23	.64	50, 100, 500, 1000
12-10 AWG	#8	TN10-8FF	YELLOW	1.02	.37	.26	.78	50, 100, 500
	#10	TN10-10FF	YELLOW	1.02	.37	.26	.78	50, 100, 500

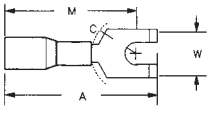
* A and M dimensions apply to insulated terminals only.
** Nylon insulated flanged forks are not funnel entry.

ORDERING INFORMATION:

Order by standard package.



Short Locking Forks



Flanged Forks

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BUTT SPLICES

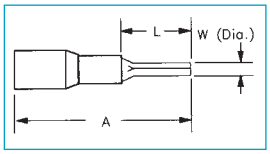
For use whenever two wires need to be connected. Available in three styles: premium nylon insulated, vinyl insulated and non-insulated. Non-insulated butt splices have a brazed seam to prevent separation during crimping. All butt splices have a bell shaped wire entry with a serrated inner barrel for added pull-out strength.

WIRE RANGE	NYLON INSULATED	VINYL INSULATED	NON-INSULATED	INSULATION COLOR	STANDARD PACKAGE
#22-18 AWG	TBSN18	TBSV18	TBS18	RED	50, 100, 1000
#16-14 AWG	TBSN14	TBSV14	TBS14	BLUE	50, 100, 1000
#12-10 AWG	TBSN10	TBSV10	TBS10	YELLOW	50, 100, 1000

ORDERING INFORMATION: Ordered by standard package.

PIN TERMINALS

Pin terminals are primarily designed for compression type terminal blocks. Available in vinyl insulation only.



WIRE RANGE	VINYL INSULATED	INSULATION COLOR	A	L	W	STANDARD PACKAGE
22-18 AWG	TV18-47P	RED	.84	.47	.08	50, 100, 500, 1000
16-14 AWG	TV14-47P	BLUE	.84	.47	.08	50, 100, 500, 1000
12-10 AWG	TV10-55P	YELLOW	1.12	.55	.11	50, 100, 500

ORDERING INFORMATION: Order by standard package.

3-WAY AND 4-WAY CONNECTORS

3 or 4 ring connectors are tightly riveted together to allow the connection of multiple wires into one circuit. The center hole diameter is .160". Available in vinyl insulation only.

WIRE RANGE	3-W VINYL INSULATED	4-W VINYL INSULATED	STANDARD PACKAGE
22-18 AWG	TV18-3W		50, 100, 500, 1000
16-14 AWG	TV14-3W		50, 100, 500, 1000
12-10 AWG	TV10-3W	TV10-4W	50, 100, 500

ORDERING INFORMATION: Order by standard package.

CRIMPABLE WIRE JOINTS

Wire joints can be used as a splice, wire butt, parallel or dead–end cap. Each size has a minimum and maximum range of wires it will accept. Available in nylon insulation.

MIN/MAX* RANGE	PART NUMBER	INSULATION COLOR	STANDARD PACKAGE
2@18 - 2@16 AWG	TJN218-216	CLEAR	100, 500, 1000
4@18 - 2@12 AWG	TJN418-212	CLEAR	100, 500, 1000
3@14 - 4@12 AWG	TJN314-412	CLEAR	100, 500

ORDERING INFORMATION: Order by standard package.

WIRE FERRULES

Wire ferrules are typically used on wires being inserted into the IEC (European) style terminal blocks. They prevent fraying and crushing of wire strands.

PART NUMBER	WIRE AWG	INSUL COLOR	LENGTH
TFRL14-10MM	14	BLUE	10mm (.39in)
TFRL12-10MM	12	GREY	10mm (.39in)
TFRL10-12MM	10	BLACK	12mm (.47in)
TFRL8-12MM	8	IVORY	12mm (.47in)
TFRL6-12MM	6	GREEN	12mm (.47in)
TFRL4-16MM	4	BROWN	16mm (.63in)
TFRL2-16MM	2	BEIGE	16mm (.63in)

DEUTSCH DTM, DT AND DTP SERIES CONNECTORS

Deutsch DTM and DT Series of environmentally-sealed connectors are designed for cable to cable applications, where signal level circuits must withstand harsh conditions. DTM and DT series connectors will provide reliability and performance at low cost. DTP series connectors deliver environmentally-sealed performance for power applications.

FEATURES:
- Integral Connector Latch
- Silicone Seals
- Machined contacts
- Contact Current rating:
  - 7.5 Amps (DTM)
  - 13 Amps (DT)
  - 25 Amps (DTP)
- Fail Safe Secondary Locks
- Hand Insertable/Removable contacts

MACHINED CONTACTS

AWG	CONN. STYLE	SOCKETS	PINS	PKG SIZE	CURRENT RATING	PRODUCTION TOOL	FIELD SVC. TOOL
24-20	DTM	T20DTP-S	T20DTP-P	100	7.5	VT-HDT-48	VT-HDT-1561
20-16	DT	T16DTP-S	T16DTP-P	100	7.5	VT-HDT-48	VT-HDT-1561
16-14	DT	T14DT-S	T14DT-P	100	13	VT-HDT-48	VT-HDT-1561
12	DTP	T12DTP-S	T12DTP-P	100	25	VT-HDT-48	VT-HDT-1561

NEW PRODUCT!

DTM KITS (INCLUDES SECONDARY LOCKS)

CIRCUITS	RECEPTACLES (CONTACT:PINS)	PLUGS (CONTACT:SOCKETS)	PKG SIZE
2	TDTM04-2P	TDTM06-2S	10
3	TDTM04-3P	TDTM06-3S	10
4	TDTM04-4P	TDTM06-4S	10
6	TDTM04-6P	TDTM06-6S	10
8	TDTM04-8P	TDTM06-8S	10
12	TDTM04-12P	TDTM06-12S	10

DT KITS (INCLUDES SECONDARY LOCKS)

CIRCUITS	RECEPTACLES (CONTACT:PINS)	PLUGS (CONTACT:SOCKETS)	PKG SIZE
2	TDT04-2P	TDT06-2S	10
3	TDT04-3P	TDT06-3S	10
4	TDT04-4P	TDT06-4S	10
6	TDT04-6P	TDT06-6S	10
8	TDT04-8P	TDT06-8S	10
12	TDT04-12P	TDT06-12S	10

DTP KITS (INCLUDES SECONDARY LOCKS)

CIRCUITS	RECEPTACLES (CONTACT:PINS)	PLUGS (CONTACT:SOCKETS)	PKG SIZE
2	TDTP04-2P	TDTP06-2S	10
4	TDTP04-4P	TDTP06-4S	10

DEUTSCH DTHD POWER PLUGS

Deutsch DTHD series provides complete, environmentally–sealed, single–power circuit termination for cable to cable applications.

DTHD CONNECTORS & CONTACTS

WIRE AWG	RECEPTACLES P/N	PIN P/N	PLUG P/N	SOCKET P/N	CONTACT CURRENT RATING	PKGE SIZE	CRIPM TOOL
10-8	TDTHD04-1-8P	T8DTHD-P	TDTHD06-1-8S	T8DTHD-S	60	5, 25	VT-HDP-400
6	TDTHD04-1-4P	T6DTHD-P	TDTHD06-1-4S	T6DTHD-S	100	5, 25	VT-HDP-400

DEUTSCH CAVITY PLUGS

AWG	CAVITY PLUGS	CONN. SERIES
16, 12	T114017	DT, DTP
	0413-204-2005	DTM

Cavity Plugs

Production Crimp Tool

VT-HDT-48

Crimp Tool (Field Service)

VT-HDT-1561

Crimp Tool

VT-HDP-400

Contact/Wedgelock Removal Tool

VT-DT/RT

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NEW PRODUCT!

DELPHI WEATHER PACK CONNECTORS

Male Terms

Female Terms

Delphi Weather Pack Connectors are environmentally sealed electrical connections designed to withstand exposure to extreme temperatures and moisture.

WEATHER PACK–TERMINALS

MALE TERMINALS (FOR SHROUD HOUSING) P/N	FEMALE TERMINALS (FOR TOWER HOUSING.) P/N	WIRE RANGE	PKG QTY
T12049040	T12089188	20-18	50
T12124582	T12124580	16-14	50
T12124587	T12124581	12	50

BENEFITS:

- Sealed system specifically designed to withstand exposure to extreme temperatures, chemicals and fluids
- Pin and sleeve configuration to alleviate stress relaxation
- Secondary lock and Connector Position Assurance (CPA) for improved system design
- Dual-locking tangs on terminals help prevent backing out
- Terminal plugging requires no orientation
- Positive locking indexing prevents mis-mating of connectors
- Low energy, low voltage capability for vehicle electronics

WEATHER PACK CAVITY PLUG

SEAL P/N	COLOR	PKG QTY
T12010300	Lt. Green	50

Cavity plugs are required for all unused cavities

Cavity Plug

Cable Seals

WEATHER PACK CABLE SEALS

SEAL P/N	WIRE RANGE	COLOR	PKG QTY
T12089679	20	Purple	50
T12041351	18	Tan	50
T12015323	16-14	Green	50
T12010293	14	Lt. Grey	50
T12015193	12	Blue	50

Cable seals are inserted on the wire prior to crimping

Solutions:
Pacer will make custom pigtails, according to your specifications. Call customer service for details.

Shroud Housing

Tower Housing

WEATHER PACK CONNECTORS

SHROUD HOUSING CONNECTOR	TOWER HOUSING CONNECTOR	# OF CAVITIES	COLOR	PKG QTY
T12010996	T12015791	1	Black	5
T12010973	T12015792	2	Black	5
T12010717	T12015793	3	Black	5
T12015024	T12015798	4	Black	5
T12010975	T12015799	6	Black	5

Shroud Assembly

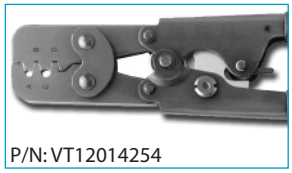
Tower Assembly

WEATHER PACK–FULLY ASSEMBLY PIGTAILS

SHROUD HOUSING PIGTAIL P/N*	TOWER HOUSING PIGTAIL P/N*	# OF CAVITIES	COLOR	PKG QTY
TWP-1F	TWP-1M	1	Black	1
TWP-2F	TWP-2M	2	Black	1
TWP-3F	TWP-3M	3	Black	1
TWP-4F	TWP-4M	4	Black	1
TWP-6F	TWP-6M	6	Black	1

* Fully assembled with 9" 14 AWG tinned copper, black leads

WEATHER PACK TOOLS


P/N: VT12014254

Field Service Crimp Tool 14-20 gauge wire (crimps both terminal and seal in one step)

P/N: VT12155975

Field Service Crimp Tool 16-12 gauge wire

Terminal Removal Tool

P/N: VT12014012

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TINNED PLATED "CLOSED END" LUGS

General purpose seamless electrical terminals. Made from 100% pure electrolytic copper, fully annealed to prevent cracking while being crimped and while in service. Tinned plated for optimum corrosion resistance. All lugs have a flared "bell" shaped entry to facilitate wire insertion. Pacer's closed end lugs are uniquely made so that there is no exposed seam on the outside of the terminal.

FEATURES:

- Tinned plated, E.T.P. (Electrolytic Tough Pitch) CDA-110, ASTM-B-152 copper, rated at 100% conductivity
- UL and CSA Approved
- No exposed seams

WIRE RANGE	STUD SIZE	PART NUMBER	LENGTH	WIDTH	CLEARANCE	STANDARD PACKAGE
#8 AWG	#10	TAE8-10R-T	1.187	.438	.344	25, 50, 100, 500
	1/4"	TAE8-14R-T	1.187	.438	.344	25, 50, 100, 500
	5/16"	TAE8-56R-T	1.187	.438	.344	25, 50, 100, 500
	3/8"	TAE8-38R-T	1.344	.609	.406	25, 50, 100, 500
	1/2"	TAE8-12R-T	1.484	.766	.469	25, 50, 100, 500
# 6 AWG	#10	TAE6-10R-T	1.266	.438	.344	25, 50, 100, 500
	1/4"	TAE6-14R-T	1.266	.438	.344	25, 50, 100, 500
	5/16"	TAE6-56R-T	1.266	.438	.344	25, 50, 100, 500
	3/8"	TAE6-38R-T	1.406	.609	.406	25, 50, 100, 500
	1/2"	TAE6-12R-T	1.547	.766	.469	25, 50, 100, 500
# 4 AWG	#10	TAE4-10R-T	1.500	.531	.406	25, 50, 100, 500
	1/4"	TAE4-14R-T	1.500	.531	.406	25, 50, 100, 500
	5/16"	TAE4-56R-T	1.500	.531	.406	25, 50, 100, 500
	3/8"	TAE4-38R-T	1.500	.531	.406	25, 50, 100, 500
	1/2"	TAE4-12R-T	1.688	.766	.469	25, 50, 100, 500
# 2 AWG	1/4"	TAE2-14R-T	1.625	.609	.406	10, 25, 50, 100
	5/16"	TAE2-56R-T	1.625	.609	.406	10, 25, 50, 100
	3/8"	TAE2-38R-T	1.625	.609	.406	10, 25, 50, 100
	1/2"	TAE2-12R-T	1.750	.766	.469	10, 25, 50, 100
# 1 AWG	1/4"	TAE1-14R-T	1.719	..692	.406	10, 25, 50, 100
	5/16"	TAE1-56R-T	1.719	.692	.406	10, 25, 50, 100
	3/8"	TAE1-38R-T	1.719	.692	.406	10, 25, 50, 100
	1/2"	TAE1-12R-T	1.719	.692	.469	10, 25, 50, 100
# 1/0 AWG	1/4"	TAE1/0-14R-T	1.844	.734	.406	10, 25, 50, 100
	5/16"	TAE1/0-56R-T	1.844	.734	.406	10, 25, 50, 100
	3/8"	TAE1/0-38R-T	1.844	.734	.406	10, 25, 50, 100
	1/2"	TAE1/0-12R-T	1.844	.734	.469	10, 25, 50, 100
# 2/0 AWG	1/4"	TAE2/0-14R-T	2.063	.813	.500	10, 25, 50, 100
	5/16"	TAE2/0-56R-T	2.063	.813	.500	10, 25, 50, 100
	3/8"	TAE2/0-38R-T	2.063	.813	.500	10, 25, 50, 100
	1/2"	TAE2/0-12R-T	2.063	.813	.500	10, 25, 50, 100
# 3/0 AWG	1/4"	TAE3/0-14R-T	2.172	.906	.500	10, 25, 50, 100
	5/16"	TAE3/0-56R-T	2.172	.906	.500	10, 25, 50, 100
	3/8"	TAE3/0-38R-T	2.172	.906	.500	10, 25, 50, 100
	1/2"	TAE3/0-12R-T	2.172	.906	.500	10, 25, 50, 100
# 4/0 AWG	1/4"	TAE4/0-14R-T	2.344	.984	.547	10, 25, 50, 100
	5/16"	TAE4/0-56R-T	2.344	.984	.547	10, 25, 50, 100
	3/8"	TAE4/0-38R-T	2.344	.984	.547	10, 25, 50, 100
	1/2"	TAE4/0-12R-T	2.344	.984	.547	10, 25, 50, 100

Heavy Duty Starter/Battery Lugs with longer barrels and heavier wall thickness are available upon request.

ORDERING INFORMATION: Order by standard package.

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BRAZED SEAM TINNED BATTERY LUGS

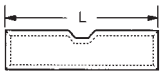
NON-INSULATED

Made from pure electrolytic copper for high conductivity and electro-plated with tin for maximum corrosion protection. Wire barrels are silver alloy brazed, allowing the lug to be crimped anywhere, even on the seam, without splitting. The inside of the barrel is serrated with "V" grooves, which when crimped, grip the wire adding to the holding power. These lugs are very sturdy and durable even in the most demanding conditions.

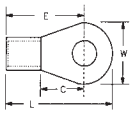
NYLON INSULATED

FEATURES:

- Tinned plated, E.T.P. (Electrolytic Tough Pitch) CDA-110, ASTM-B-152 copper, rated at 100% conductivity
- UL and CSA Approved
- Silver Alloy Brazed Seam.



Butt Splices



Ring Lugs

BUTT SPLICES

WIRE RANGE	PART NUMBER NON-INS.	PART NUMBER NYLON INS.	INS. COLOR	L NON-INS.	L INSULATED	STANDARD PACKAGE
#8 AWG	TBS8	TBSN8	RED	.77	1.45	25, 50, 100, 500
#6 AWG	TBS6	TBSN6	BLUE	1.02	1.86	25, 50, 100, 500
#4 AWG	TBS4	TBSN4	YELLOW	1.20	2.03	25, 50, 100, 500
#2 AWG	TBS2			1.37		10, 25, 50, 100
#1/0	TBS1/0			1.52		10, 25, 50, 100
#2/0	TBS2/0			1.58		10, 25, 50, 100
#4/0	TBS4/0			1.58		10, 25, 50, 100

RING LUGS

WIRE RANGE	STUD SIZE	NON INS.	NYLON INS.	INS. COLOR	L NON-INS	E NON-INS	C	W	STANDARD PACKAGE
#8 AWG	#10	TL8-10R	TLNF8-10R	RED	.960	.720	.388	.374	25, 50, 100, 500
	1/4"	TL8-14R	TLNF8-14R	RED	.960	.720	.388	.374	25, 50, 100, 500
	5/16"	TL8-56R	TLNF8-56R	RED	1.007	.720	.388	.374	25, 50, 100, 500
	3/8"	TL8-38R	TLNF8-38R	RED	1.136	.785	.453	.583	25, 50, 100, 500
	1/2"	TL8-12R	TLNF8-12R	RED	1.432	.968	.636	.810	25, 50, 100, 500
# 6 AWG	#10	TL6-10R	TLNF6-10R	BLUE	1.215	.896	.511	.480	25, 50, 100, 500
	1/4"	TL6-14R	TLNF6-14R	BLUE	1.215	.896	.511	.480	25, 50, 100, 500
	5/16"	TL6-56R	TLNF6-56R	BLUE	1.215	.896	.511	.480	25, 50, 100, 500
	3/8"	TL6-38R	TLNF6-38R	BLUE	1.296	.896	.511	.643	25, 50, 100, 500
	1/2"	TL6-12R	TLNF6-12R	BLUE	1.479	.988	.603	.825	25, 50, 100, 500
# 4 AWG	#10	TL4-10R	TLNF4-10R	YELLOW	1.288	.994	.547	.475	25, 50, 100, 500
	1/4"	TL4-14R	TLNF4-14R	YELLOW	1.288	.994	.547	.475	25, 50, 100, 500
	5/16"	TL4-56R	TLNF4-56R	YELLOW	1.288	.994	.547	.475	25, 50, 100, 500
	3/8"	TL4-38R	TLNF4-38R	YELLOW	1.385	.994	.547	.665	25, 50, 100, 500
	1/2"	TL4-12R	TLNF4-12R	YELLOW	1.385	.994	.547	.665	25, 50, 100, 500
# 2 AWG	1/4"	TL2-14R	-	-	1.578	1.218	.703	.630	10, 25, 50, 100
	5/16"	TL2-56R	-	-	1.578	1.218	.703	.630	10, 25, 50, 100
	3/8"	TL2-38R	-	-	1.578	1.218	.703	.630	10, 25, 50, 100
	1/2"	TL2-12R	-	-	1.695	1.218	.703	.864	10, 25, 50, 100
# 1/0	1/4"	TL1/0-14R	-	-	1.949	-	-	.820	10, 25, 50, 100
	5/16"	TL1/0-56R	-	-	1.949	-	-	.820	10, 25, 50, 100
	3/8"	TL1/0-38R	-	-	1.949	-	-	.820	10, 25, 50, 100
	1/2"	TL1/0-12R	-	-	1.980	-	-	.864	10, 25, 50, 100
# 2/0	1/4"	TL2/0-14R	-	-	2.180	-	-	.928	10, 25, 50, 100
	5/16"	TL2/0-56R	-	-	2.180	-	-	.928	10, 25, 50, 100
	3/8"	TL2/0-38R	-	-	2.180	-	-	.928	10, 25, 50, 100
	1/2"	TL2/0-12R	-	-	2.180	-	-	.928	10, 25, 50, 100
# 3/0	1/4"	TL3/0-14R	-	-	2.180	-	-	1.047	10, 25, 50, 100
	5/16"	TL3/0-56R	-	-	2.180	-	-	1.047	10, 25, 50, 100
	3/8"	TL3/0-38R	-	-	2.180	-	-	1.047	10, 25, 50, 100
	1/2"	TL3/0-12R	-	-	2.180	-	-	1.047	10, 25, 50, 100
# 4/0	1/4"	TL4/0-14R	-	-	2.242	-	-	1.115	10, 25, 50, 100
	5/16"	TL4/0-56R	-	-	2.242	-	-	1.115	10, 25, 50, 100
	3/8"	TL4/0-38R	-	-	2.242	-	-	1.115	10, 25, 50, 100
	1/2"	TL4/0-12R	-	-	2.242	-	-	1.115	10, 25, 50, 100

ORDERING INFORMATION: Order by standard package.

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BATTERY POST LUGS

All battery terminals are cast using 131 contact copper which is 93% to 95% copper. They are electro-plated with a bright tin finish. Each terminal has raised letters to provide legibility of important information such as wire size and post type. Our battery terminals are sand cast which makes them more durable and reliable than die cast parts. A deep chamfer entry promotes the ease of wire installation. For corrosion protection a thin layer of epoxy is applied to the surface of the nuts and bolts. This thin layer does not affect the ease of assembly and will maintain consistent torque and galvanic protection.

FEATURES:

- Tinned plated, 131 contact copper
- Chamfered Entry
- Anti-corrosion coating applied on all nuts and bolts
- Straight, Left and Right Angle and Flag Terminals in stock
- Wire sizes from 6 AWG through 4/0

STRAIGHT TOP POST TERMINALS

WIRE RANGE	PART NUMBER	DESCRIPTION	STANDARD PACKAGE
# 6 AWG	TC-6-U	UNIVERSAL	5, 10, 25
# 4 AWG	TC-4-P	POSITIVE	5, 10, 25
	TC-4-N	NEGATIVE	5, 10, 25
# 1-2 AWG	TC-1-P	POSITIVE	5, 10, 25
	TC-1-N	NEGATIVE	5, 10, 25
# 1/0	TC-10-P	POSITIVE	5, 10, 25
	TC-10-N	NEGATIVE	5, 10, 25
# 2/0	TC-20-P	POSITIVE	5, 10, 25
	TC-20-N	NEGATIVE	5, 10, 25
# 4/0	TC-40-P	POSITIVE	5, 10, 25
	TC-40-N	NEGATIVE	5, 10, 25

LEFT AND RIGHT ELBOWS TOP POST TERMINALS

WIRE RANGE	PART NUMBER LEFT	PART NUMBER RIGHT		STANDARD PACKAGE
# 1-2 AWG	TL-2-P	TR-2-P	POSITIVE	5, 10, 25
	TL-2-N	TR-2-N	NEGATIVE	5, 10, 25
# 1/0	TL-10-P	TR-10-P	POSITIVE	5, 10, 25
	TL-10-N	TR-10-N	NEGATIVE	5, 10, 25
# 2/0	TL-20-P	TR-20-P	POSITIVE	5, 10, 25
	TL-20-N	TR-20-N	NEGATIVE	5, 10, 25
# 4/0	TL-40-P	TR-40-P	POSITIVE	5, 10, 25
	TL-40-N	TR-40-N	NEGATIVE	5, 10, 25

FLAG TOP POST TERMINALS

WIRE RANGE	PART NUMBER	DESCRIPTION	STANDARD PACKAGE
# 1/0	TF-10-P	POSITIVE	5, 10, 25
	TF-10-N	NEGATIVE	5, 10, 25
# 2/0	TF-20-P	POSITIVE	5, 10, 25
	TF-20-N	NEGATIVE	5, 10, 25
# 4/0	TF-40-P	POSITIVE	5, 10, 25
	TF-40-N	NEGATIVE	5, 10, 25

MARINE TYPE TOP POST TERMINALS

PART NUMBER	DESCRIPTION	STANDARD PACKAGE
TC-200-P	POSITIVE	5, 10, 25
TC-200-N	NEGATIVE	5, 10, 25

ORDERING INFORMATION: Order by standard package.

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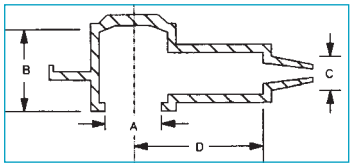
BATTERY INSULATOR BOOTS

Battery terminal insulators increase product safety by preventing electrical shorts and shock, avoiding injury and potential liability. Additionally, the use of terminal insulators assures customers that your product was designed with the highest standards of quality. Protective boots and caps extend battery life by protecting against corrosion. Constructed from durable, heavy-duty PVC. Available in straight, marine, and alternator type.

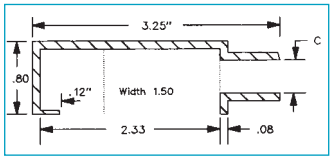
FEATURES:

- Recommended per ABYC E-10.6(1)
- Polyvinyl Chloride 105˚C
- Meets Coast Guard 33 CFR Part 183 Subpart 1
- Meets S.A.E. J378 and J1128 (Low voltage caps)
- Meets UL 94 V2 Rated 105˚C

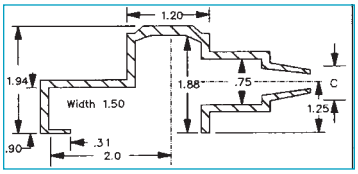
ABYC recommends that "Except for circuits provided with over current protection in accordance with ABYC E-9.11. continuously energized parts, such as positive battery terminals and both ends of all wires connected thereto, shall be protected to prevent accidental short circuits."



Alternator Type



Straight Type



Marine Type

ALTERNATOR TYPE

WIRE RANGE	PART NUMBER	TERMINAL O.D. "A"	POST HEIGHT "B"	CABLE ENTRY "C" MIN/MAX	COLOR	STANDARD PACKAGE
10-6 AWG	TBCA6-R	.48	.75	.30/.50	RED	10, 25, 50
	TBCA6-B	.48	.75	.30/.50	BLACK	10, 25, 50
8-2 AWG	TBCA2-R	.87	1.05	.30/.50	RED	5, 10, 25
	TBCA2-B	.87	1.05	.30/.50	BLACK	5, 10, 25
2-4/0 AWG	TBCA20-R	.87	1.05	.50/.70	RED	5, 10, 25
	TBCA20-B	.87	1.05	.50/.70	BLACK	5, 10, 25
4/0 AWG	TBCA40-R	1.37	1.60	.70/.90	RED	5, 10, 25
	TBCA40-B	1.37	1.60	.70/.90	BLACK	5, 10, 25

STRAIGHT TYPE

WIRE RANGE	PART NUMBER	CABLE ENTRY	COLOR	STANDARD PACKAGE
6-2 AWG	TBCS2-R	.500	RED	5, 10, 25
	TBCS2-B	.500	BLACK	5, 10, 25
2-2/0 AWG	TBCS20-R	.625	RED	5, 10, 25
	TBCS20-B	.625	BLACK	5, 10, 25
4/0 AWG	TBCS40-R	.700	RED	5, 10, 25
	TBCS40-B	.700	BLACK	5, 10, 25

MARINE TYPE

WIRE RANGE	PART NUMBER	CABLE ENTRY "C" MIN/MAX	COLOR	STANDARD PACKAGE
6-2 AWG	TBCM2-R	.30/.50	RED	5, 10, 25
	TBCM2-B	.30/.50	BLACK	5, 10, 25
2-4/0 AWG	TBCM20-R	.50/.70	RED	5, 10, 25
	TBCM20-B	.50/.70	BLACK	5, 10, 25

ORDERING INFORMATION: Order by standard package.

TERMINAL BOXES

Scoop type compartment boxes are a handy way of organizing and neatly transporting terminals, screws and all types of fasteners. Two types of boxes are available.

METAL

Metal boxes are made of prime cold–rolled steel, finished with rust and acid–resistant baked enamel (gray). Both the large and small boxes have 21 compartments with one long compartment for tool storage. A catch type latch keeps the lid secure.

PLASTIC

Manufactured from high strength, oil resistant polypropylene, these plastic boxes are durable and economical. The transparent plastic boxes are furnished with heavy-duty reinforced hinges that allow the lid to stand up in the open position. The cover overlaps on all sides fitting snugly against the edges.

PART NUMBER	DESC.	BOX O.D. WIDTH	BOX O.D. HEIGHT	BOX O.D. DEPTH	COMPARTMENT I.D. WIDTH	COMPARTMENT I.D. HEIGHT	COMPARTMENT I.D. DEPTH	NO. OF COMPARTMENTS	WT. LBS.
VBOX-MS	SMALL	13 3/8"	2"	9 1/4"	1 7/8"	1 7/8"	2 1/4"	21	4
VBOX-ML	LARGE	18"	3"	12"	2 3/4"	2 7/8"	2 7/8"	21	8
VBOX-PL	PLASTIC	11	1 3/4"	6 3/4"	1 3/4"	1 9/16"	2"	18	.7

ORDERING INFORMATION: Order by the box.

METAL BOX RACKS

PART NUMBER	DRAWERS	DIMENSIONS	WT. LBS.
VBOXRK-SM	4 Boxes	15 1/4"W x 11 3/4"D x 11 1/4"H	22
VBOXRK-L	4 Boxes	20 1/4"W x 12 1/2"D x 15"H	30

VBOXRK-SM

VBOXRK-L

ELECTRICAL SEALANTS & COATINGS

3M Electrical Coating

3M™ Scotchkote™ electrical coating provides a tough, oil-resistant outer seal on electrical insulation subjected to abnormal weathering, oil, or moisture conditions. The brush applied coating provides added oil and moisture protection when used over an application of Scotch™ Vinyl electrical tapes.

FEATURES:

- Provides a tough oil-resistant seal
- Easy to Coat.
- 15 Fl. Oz. (443 ml) per can
- Integral Brush and Cap
- Fast Drying

Part Number = **ESCOTCHKOTE**

3M Insulating Sealers

3M™ 1601 and 1602 Sealers insulate, refinish, and protect. Use to overcoat outdoor electrical splices and splice cases to impede the effects of weather, moisture, acids, alkalies, and oils.

FEATURES:

- Provides 850V per mil insulation
- Inhibits Rust
- Impede the effects of weather, moisture, acids, alkalies, and oil
- 15.13 fl. oz. (447 ml)

PART NUMBER	COLOR
E1601CLR	CLEAR
E1602RD	RED

CORROSION X Marine...

CORROSION X™ MARINE

The new generation in corrosion control. Corrosion X™ Marine takes corrosion protection to a higher level. It keeps corrosion from starting and kills it where it already has a foothold, by displacing moisture to provide long-lasting protection. Also, Corrosion X™ is a superior penetrant. Use Corrosion X™ Marine on any metal fixture or electrical component.

PART NUMBER	SIZE
VCX-6	6 Oz.
VCX-16	16 OZ.

CORROSION X™ HEAVY DUTY

For super long-term protection against serious rust and corrosion assault. It is a high performance, thick film version of CorrosionX. It will slowly penetrate existing rust and corrosion, remove moisture, stop electrolysis, and seals moisture out. Unlike wax coatings, it will not dry out, stiffen or crack under stress. It will remain for hours on outdrives, even while underway!

PART NUMBER	SIZE
VCX-12	12 OZ.

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NEW PRODUCT!

PROFESSIONAL LABELING TOOLS

Part Number VT-3000

RHINO 3000 HARD CASE KIT

RHINO 3000 is an easy-to-use portable label printer specifically developed for high-end installations at the job site or home: security, low-voltage networking, home automation, professional audio/video and much more.

KIT INCLUDES:

- Durable Hard Carry Case
- Rhino 3000 with impact-resistant rubber bumper
- One ½" (12 mm) white flexible nylon label cartridge
- One ½" (12 mm) white permanent polyester label cartridge
- 6 "AA" batteries
- AC power adapter

Part Number VT-5200

RHINO 5200 HARD CASE KIT

Proven to outperform higher-priced labeling solutions in real-world jobsite conditions, the powerful and lightweight Rhino 5200 offers unique features and functionality to make your job easy.

KIT INCLUDES:

- Durable Hard Carry Case
- Rhino 5200 printer
- User manual on CD-rom
- Quick reference guide
- 3/4" (19mm) white flexible nylon tape
- 3⁄8" (9mm) white vinyl tape
- Rechargeable lithium-ion battery pack
- AC adaptor

Part Number VT-6000

RHINO 6000 HARD CASE KIT

The Rhino 6000 is loaded with revolutionary, time-saving features. With exclusive "Hot Keys", you'll eliminate guesswork and enjoy fast and easy formatting of commonly used label types for marking wire and cable, terminal blocks, patch panels and much more.

KIT INCLUDES:

- Rugged, hard, carry case
- Rhino 6000 Professional Label Printer
- Rhino CONNECT™ labeling software:
  - Upload / download label files for in-the field and on-demand printing.
  - Insert customized graphics, logos, symbols and industry terms.
  - Import data from any Windows®-based program.
  - Create labels using the integrated step-by-step wizard.
  - Print labels directly from Rhino CONNECT™ Software.
- One 1" Black on White Flexible Nylon Label Cartridge
- One 3/8" Black on White Vinyl Label Cartridge
- Lithium-ion rechargeable battery pack
- AC adapter
- USB cable
- CD with Instruction Manual
- Quick Reference Guide
- Registration Card

LABELS

PART NUMBER	SIZE	DESCRIPTION	3000	5200	6000
VTM18488	1/2" (12mm) x 11.5'	White Flexible Nylon Tape	X	X	X
VTM18489	3/4" (19mm) x 11.5'	White Flexible Nylon Tape		X	X
VTM1734524	1" (24mm) x 11.5'	White Flexible Nylon Tape			X
VTM18490	1/2" (12mm) x 11.5'	Yellow Flexible Nylon Tape	X	X	X
VTM18491	3/4" (19mm) x 11.5'	Yellow Flexible Nylon Tape		X	X
VTM1734525	1" (24mm) x 11.5'	Yellow Flexible Nylon Tape			X
VTM18051	1/4" (6mm) x 5'	White Heat Shrink Tube	X	X	X
VTM18053	3/8" (9mm) x 5'	White Heat Shrink Tube	X	X	X
VTM18055	1/2" (12mm) x 5'	White Heat Shrink Tube	X	X	X
VTM18057	3/4" (19mm) x 5'	White Heat Shrink Tube		X	X
VTM18052	1/4" (6mm) x 5'	Yellow Heat Shrink Tube	X	X	X
VTM18054	3/8" (9mm) x 5'	Yellow Heat Shrink Tube	X	X	X
VTM18056	1/2" (12mm) x 5'	Yellow Heat Shrink Tube	X	X	X
VTM18058	3/4" (19mm) x 5'	Yellow Heat Shrink Tube		X	X
VTM1734821	1" (24mm) x 1"	White Self-Laminating			X

Part Number VTM1011

RHINO M1011 METAL TAPE EMBOSSER

Industrial and factory tasks are made easy with this tough cast-aluminum labeler.

KIT INCLUDES:

- Hard Carry Case
- M1011 Metal Tape Embosser
- Horizontal .188" Character Wheel
- Reverse Image Wheel
- One Roll 1/2" (12mm) x 12' (4,80m) Non-Adhesive Aluminum Tape
- One Roll 1/2" (12mm) x 16' (6,40m) Non-Adhesive Stainless Steel Tape

LABELS FOR THE M1011:

PART NUMBER	SIZE	DESCRIPTION
VTM32500	1/2" x 21'	Non-Adhesive Stainless Steel

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MARKER BOOKS

For convenience and portability, pocket size marker books are an economical and handy way to utilize the benefits of wire markers. The markers are composed of impregnated vinyl cloth to resist solvents. A 1/4" long, terminal block marker is provided for each full length marker. Each book contains 10 pages.

FEATURES:

- Portable and convenient
- Temperature Range -40˚C to 121˚C
- Minimum application temperature 4˚C
- Nominal Thickness 10.0 mil.
- For use on wires with outside diameters up to 3/8"
- Intended for indoor use
- Large variety of selections

PART NO.	LEGEND	NO. OF MARKERS/LEGEND	STD. PKG.
VPCMB-1	0 - 9	45	1
VPCMB-2	A - Z, 0 - 15, +, -, /	10	1
VPCMB-3	1 - 45	10	1
VPCMB-4	1 - 3	150	1
VPCMB-5	A - C	150	1
VPCMB-8	1 - 15, (16 - 90), A - Z, +, -, /, 0	6, (4), 2	1
VPCMB-9	1 - 3, A - C, (L1, L2, L3, T1, T2, T3)	45, (30)	1
VPCMB-10	Nema Colors	45	1
VPCMB-11	1 - 30	15	1
VPCMB-12	A - Z, (+), -, (Blank Write-on)	15, (8), 7, (21)	1
VPCMB-13	+, -, AC, DC, (POS, NEG, GND) NEUT, (SPARE, Blank Write-on)	45, (33) 27, (21)	1
VPCMB-14	46 - 90	10	1
VPCMB-15	0 - 45, +, -	10	1
VPCMB-16	0 - 33, A - C, +, -, L1-3, T1-3	10	1

ORDERING INFORMATION: Order by standard package.

MARKER CARDS

All cards are designed so the edge can be pulled back for easy marker removal, then folded back to it's original position to keep unused markers fresh. All markers are 1-1/2" long to accommodate cable diameters up to 3/8". Markers are composed of vinyl impregnated cloth that resist solvents. Legends are available from 0 through 9.

FEATURES:

- Temperature Range -40˚C to 121˚C
- Minimum application temperature 4˚C
- Nominal Thickness 10.0 mil.
- For use on wire outside diameters up to 3/8"
- Intended for indoor use

ORDERING INFORMATION: Order by standard package.

PART NUMBER	DESCRIPTION	LEGEND	MARKERS PER CARD	STANDARD PACKAGE
VPCM-0	CLOTH	0		5 or 25 Cards
VPCM-1 - 9	Markers	1 - 9	36	5,25

MARKER ROLLS AND DISPENSER

PART NUMBER	PRODUCT DESCRIPTION	LEGEND	STANDARD PACKAGE
VPMD	Empty Disp.	—	1
VPMD-0-9	Filled Disp.	0 - 9	1
VPMDR-0	Indiv. Tape Rolls	0	1
VPMDR-1-9		1 - 9	1
VPMDR-9		9	1

Uniquely designed dispenser cuts the tape by pressing the cover, no tearing or knife necessary. The cut is clean, with no serrated edges ensuring better adhesion. Markers are made of a polyester film which is resistant to heat, oil, and solvents.

FEATURES:

- Tough polypropylene construction, single piece design
- Intended for indoor or outdoor use

WRITE-ON MARKERS AND DISPENSER KITS

Marker dispensers are made of tough polypropylene. Replacement rolls of marker tape are easily loaded.

PART NUMBER	PROD. DESC.	WRITE-ON AREA (L x W)	TOTAL MARKER SIZE (L x W)	MARKERS PER ROLL	STAND PKG.
VPLD-1	KIT*	.375" x 1"	1.25" x 1"	200	1
VPLD-2	KIT*	.75" x 1"	3" x 1"	100	1
VPLDR-1	REPL. TAPE	.375" x 1"	1.25" x 1"	200	1
VPLDR-2	REPL. TAPE	.75" x 1"	2.25" x 1"	100	1

*Kit contains a dispenser, tape and marking pen.

ORDERING INFORMATION: Order by Standard Package.

MARKING PENS

PART NUMBER	DESC.	COLOR	STAND. PKG.
VPX-0	REG. TIP	BLACK	1
VPX-2	REG. TIP	RED	1
VPX-10	REG. TIP	WHITE	1
VPFX-0	FINE TIP	BLACK	1
VPFX-2	FINE TIP	RED	1

Specially formulated ink produces a quick-to-dry, non-smearing legend. Our marking pens write on glossy surfaces, even nylon.

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CABLE CUTTERS

VT63055

VT63050

These economical tools can handle most cable cutting jobs easily. Curved shear edges allow for a clean, efficient cut without compression or fraying ends. The VT63050 is capable of cutting up to 2/0 battery cable yet the cutter is only 9 1/2" long. The VT63055 is 8" long and has a compact cutting head for use in tight areas. (Tools are not designed for cutting steel or ACSR.)

PART NUMBER	DESCRIPTION
VT63050	HIGH LEVERAGE CABLE CUTTER
VT63055	COMPACT CABLE CUTTER

ORDERING INFORMATION:

Order by the piece.

WIRE STRIPPER CUTTER

Easy to use and economical wire stripper and cutters. Overall length is 6" with a narrow nose designed to fit into tight places. Made from hardened steel with precision ground stripping holes, gauge sizes marked on both sides.

PART NUMBER	HANDLE COLOR	STRIPS STRANDED WIRE GAUGES
VT45-121	YELLOW	16, 18, 20, 22, 24, 26
VT45-124	YELLOW	8, 10, 12, 14, 16, 18

MULTI-PURPOSE TOOLS

VT1001

VT1002

VT1010

All purpose cutter/stripper/crimper. The VT1002 and VT1010 are specially designed to handle many stripping and terminating functions.

FEATURES:

- Strips 10-22 AWG
- Cuts 5 bolt sizes
- Color coded crimping and die sizes
- Knife type wire cutter
- Crimps insulated and non-insulated terminals

CAUTION: Never use any pliers or cutters on live electrical circuits.

PART NUMBER	DESCRIPTION
VT1001	ELECTRICIAN ALL-PURPOSE TOOL
VT1002	ELECTRICIAN ALL-PURPOSE TOOL
VT1010	LONG NOSE ALL-PURPOSE

ORDERING INFORMATION:

All tools are available individually.

HEAVY DUTY RATCHET CUTTER

VT63060

Capable of cutting up to 3 inch in diameter cables. A high leverage ratchet system multiplies hand force making even large gauge cable cutting easy. Its small size (13" in length) allows it to be used in tight, hard to reach areas and for easy storage in tool boxes.

P/N: VT63060 cuts up to 600 mcm soft copper

P/N: VT85-0030 cuts up to 750 mcm soft copper

NOTE: These cutters are not designed to cut steel or steel-reinforced conductors.

VT85-0030

IDEAL STRIPMASTER®

To assure quality wire stripping time after time, automatic strippers have been the accepted standard in the industry for over thirty years. Gripper pads clamp down and securely hold wire while precision cutting blades strip and remove the insulation. The controlled, one-step process greatly reduces the chance of conductor damage.

PART NUMBER	DESCRIPTION
VT45-292	FOR STRIPPING FROM 22 - 8 AWG
VT45-265	FOR STRIPPING RG 59/U COAXIAL CABLE
VT45-262	FOR STRIPPING RG 6/U COAXIAL CABLE

CABLE TIE CUTTER

The preferred cable tie cutting tool in the industry because of the following design benefits and advantages:
VERSATILE: Installs mini, intermediate, or standard cable ties with the flip of a selector knob.
CUTS: Flush with the edge of the cable tie when the predetermined tension is reached.
Flush cut cable ties prevent sharp edges which can cause injury.
P/N: VTGTS For tensioning and cutting nylon cable ties.
P/N: VT-HTMT For tensioning and coiling the tail of stainless steel cable ties.
P/N: VT-ST2MT For tensioning and cutting stainless steel cable ties.

ORDERING INFORMATION:
Order by the tool.

SWIVEL-BLADE® CABLE STRIPPERS

Used for both end or center stripping of coaxial or power cables from 1/4" through 3/4" O.D. Strips insulation up to 5/32" thick including PVC, Rubber, Neoprene, Teflon, Polyethylene, Nylon, Kapton, Fiberglass, Fabric, and others.

PART NUMBER	DESCRIPTION
VT45-144	CABLE STRIPPER FOR 1/4" TO 3/4" DIAMETER
VTLB-1748	REPLACEMENT SLITTING BLADE (PKG. OF 2)

IDEAL® CONTROLLED CYCLE CRIMP TOOLS

An excellent low–cost ratchet controlled stripper. The frame is constructed from high grade stamp hardened steel and put together with steel pins that will not stretch with use. The tool is full cycle, compound leverage and triple ratcheted to give exact precision to every crimp.

PART NUMBER	DESCRIPTION
VT30-500	22-10 Awg insulated ring terminals & splices
VT30-506	Crimp Tool Frame Only
INTERCHANGEABLE DIES	
VT30-577	RG-8/11, RG-213, N-series plugs & jacks
VT30-579	22-10 AWG insulated ring terminals & splices
VT30-580	22-8 AWG non-insulated terminals
VT30-581	RG-58, RG-59/62au, BNC/TNC 3-piece hex conn
VT30-582	CATV RG-59, RG-6 captive ring f-conn.
VT30-586	22-12 AWG non-insul. open barrel style conn.
VT30-594	22-10 AWG insulated Disconnects

KLEIN® CRIMP TOOLS

VT1006

Sturdily built from hardened steel, these crimpers have a tapered nose for work in confined areas as well as a specially hardened wire cutter on the tip. This tool is a favorite among marine repair professionals because of its unsurpassed reliability, and ease of use. The VT1005 and VT1006 are our most economical cutter crimpers.

PART NUMBER	DESCRIPTION
VT1005	For insulated and non-insulated terminals
VT1006	For non-insulated terminals only

VT1005

CONTROLLED CYCLE CRIMP TOOL

VT3120CT

A simple, economical, and easy to use crimp tool. Sargent's controlled cycle crimp tool is our preferred tool for use on heat shrink terminals.

P/N: VT3120CT

3M® RATCHET CONTROLLED CRIMP TOOL

The 3M® VTR-490 crimps insulated and non-insulated terminals from 22 through 10 AWG all in one tool. The non-insulated die has an indented shape while the die for the insulated terminals is oval in shape. The VTR-490 is capable of field adjustment for proper calibration. The ratchet ensures a controlled full cycle close to ensure proper crimp.

VTR-490

P/N: VTR-490

NEW PRODUCT!

BATTERY LUG CRIMPER

VT0280

PART NUMBER	CRIMP RANGE	DESCRIPTION
VT0280	#6 - 4/0	Adjustable
VT0280C	#8 - 2/0	Adjustable

VT0280C

AMP ROTA-CRIMP®

VT601075

High quality, heavy-duty battery terminal crimper. Available in two sizes: VT601075 for gauge sizes #8-1/0 and VT600850 for gauge sizes #8 - 4/0. Unique, spring-loaded, rotating crimp dies allow the user to crimp a full range of cables without switching out loose die pieces.

PART NUMBER	CRIMP RANGE	LENGTH	WEIGHT
VT601075	#8 - 1/0	15"	4.8 LBS.
VT600850	#8 - 4/0	25"	7.2 LBS.

VT600850

VT30-496

Ideal Telemaster™ Telephone & 10Base-T Tool

Multi-function tool cuts, strips and crimps for easy, on-the-job, one-tool application. Crimps RJ-45 and RJ-11 modular plugs.

P/N: VT30-496

VT33-750

Ideal Economy 10Base-T Telemaster™ Kit

Kit includes; UTP/Coax Stripper, Telemaster RJ-45/RJ-11 tool, 50 8-Position RJ-45 Non-Keyed solid plugs, durable hard case.

P/N: VT33-750

ORDERING INFORMATION:

All tools are available individually.

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MASTER® Ultratorch®

Ultratorches are multipurpose portable soldering irons, butane torches and flameless heat tools. They are completely cordless, running on refillable butane fuel. Excellent for field maintenance and repairs.

P/N: VUT-100Sik

The 100Si is a self-igniting butane heat tool. It comes complete with one ejector for soldering, a soldering and heat tip, a spanner wrench, open end wrench, shrink attachment and protective cap. The self-igniting ULTRATORCH® operates only as a soldering iron and a heat tool.

P/N: VUT-100Sik

Includes metal storage case.

VUT-100Sik

PART NUMBER	DESCRIPTION
V70-01-01	1mm Dia. Tapered Needle Soldering Tip
V70-01-02	3.3mm Dia. chisel Soldering Tip (Standard)
V70-01-03	2mm Dia. spade Soldering Tip
V70-01-04	3mm Dia. spade Soldering Tip
V70-01-05	0.5mm Dia. tapered Needle Soldering Tip
V70-01-06	2mm Dia. micro spade Soldering Tip
V70-01-08	2mm Dia. 35° spade Soldering Tip
V70-01-11	8mm Dia. high Powered Chisel Soldering Tip
V70-01-16	Hot Knife Tip
V70-01-52	5.7 O.D./4.9 I.D. (mm) Heat Tip
V70-01-55	Heat Shrink Attachment
V70-40U	Metal Storage Box
V90-02	Protective Cap for VUT-100SI
V80-04U	Replacement Burner
V20261	Repair Kit - 1 each: burner, tip housing, knurled cap

V70-01-01

V70-01-06

V70-01-55

V70-01-02

V70-01-08

V70-40U

V70-01-03

V70-01-11

V90-02

V70-01-04

V70-01-16

V80-04U

V70-01-05

V70-01-52

V20261

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Self-Igniting Trigger Torch

VMT-76

VMT-76 is a professional hand-held or table top, butane powered, self-igniting trigger torch, soldering iron and flameless heat tool. Comes complete with soldering tip and heat tip.

P/N: VMT-76

Pocket Sized Micro Torch

VMT-5

VMT-5 is a pocket sized, butane powered microtorch with self-igniting trigger. It is wind resistant, has adjustable flame and comes with safety lock and cap.

P/N: VMT-5

RONSON® Butane

VBUTANE

Pacer stocks Ronson butane in 150 gram canisters. Ronson fuel burns clean and extends the life of Master butane products. Order individually or by the case (12 cans).

P/N: VBUTANE

ELECTRIC HEAT GUNS

MASTER® PROHEAT

VPROHEAT

A lightweight and easy to use heat gun. Ergonomically designed and compact for superior balance and grip. PROHEAT weighs only 1 lb. 10 oz. (with cordset) making it easy to hold for long periods of time. Our most popular electric heat gun, PROHEAT heat tools perform excellently with airflow at 15CFM/3650FPM and temperatures up to 1050F. Master PROHEAT will meet the temperature and airflow requirements of most materials. A variety of attachments are also available, making PROHEAT versatile as well as efficient.

MASTER® HEAT GUN

The perfect heavy duty, flameless heat tool for hundreds of electronic and industrial applications. Comes with an adjustable rubber-backed base that permits full 90 degree rotation of the heat gun. Designed for bench top use.

APPLICATIONS

- On-site marine repairs
- Shrink Tubing
- De-solder
- Heat shrink packaging
- Strip paint and varnish
- Activates adhesives
- General heating and drying

PART NUMBER	TEMPERATURE	VOLTS	AMPS
VPROHEAT	570˚F & 1050˚	120	6A &12A
VHG-301A	300˚ - 500˚F	120	12A

Please call for a brochure containing the complete line of Master Appliance heat tools.

ORDERING INFORMATION:

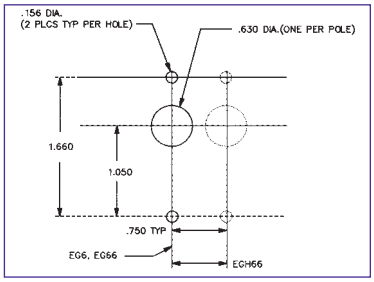
Order by the piece.

MAGNETIC CIRCUIT BREAKERS "A" FRAME

Magnetic circuit breakers offer a low cost answer to power switching and reliable circuit protection. Temperature will not effect the operation of magnetic circuit breakers, as is the case with thermal breakers or fuses. The opening of the circuit is accomplished by the amount of current passing through an electromagnetic coil. As the current exceeds the amount specified by the breaker the circuit will open. (See chart, "Percentage overload vs. trip time.") "A" frame breakers are designed to have long trip delays to avoid nuisance tripping. Pacer stocks this style in amperages ranging from 5 to 50 amp. All breakers are DC-50/60Hz and are available in white, black and red handles.

FEATURES:

- Series Trip
- "Trip Free"
- Magnetic Operation, operates as a function of current only
- Panel mounted
- Power Switching
- Round Cutout .500 diameter



PERCENTAGE OVERLOAD VS. TRIP TIME IN SECONDS AT +25(C (VERTICAL MOUNT)

DELAY	100%	135%	150%	200%	400%	600%	800%	1000%
DC/60Hz LONG DELAY	NO TRIP	7-130	3-60	1.3-20	.085-3	.02-2	.015-.8	.01-.26

"A" FRAME INTERRUPTING CAPACITY, AMPS

(REFER TO TABLE 5 - TECHNICAL DATA FOR ABYC CIRCUIT BREAKER MIN. AMPERE INTERRUPTING CAPACITY)

VOLTAGE			CURRENT RATING FULL LOAD AMPS	INTERRUPTING CAPACITY UL/CSA WITHOUT BACKUP FUSE
MAX. RATING	FREQUENCY	PHASE		
65	DC		31 - 50	3000
80	DC		0.02 - 30	3000
125/250	50/60Hz	1Ø	0.02 - 30	3000
125/250	50/60Hz	1Ø	31 - 50	2000

TECHNICAL SPECIFICATION AND TEST RESULTS

Series Trip: Long Delay

Inrush Pulse Tolerance: 10 times rated current

Operating Temperature: -40˚C to 85˚C

Shock: Withstands 100g or more without tripping while carrying full rated current per MIL-Std-202, Method 213, Cond. 1.

Vibration: Withstands 10g without tripping while carrying full rated current per MIL-Std-202, Method 204, Cond. A.

Endurance: Withstands 10,000 operations at rated voltage and current or withstands 50 operations of 600% AC or 1000% DC rated current at rated voltage and current, in accordance with UL 1077.

Moisture Resistance: Meets requirements of MIL-C-55629, tested in accordance with MIL-STD-202, Method 106.

Salt Spray: Meets requirements of MIL-C-55629, tested in accordance with MIL-STD-202, Method 101.

Trip Free: Trips open on overload, cannot be forcibly held on.

RATED AMPS	SINGLE POLE	DOUBLE POLE SINGLE THROW	DOUBLE THROW
5	EG6-1-5		
10	EG6-1-10	EG66-1-10	EGH66-1-10
15	EG6-1-15	EG66-1-15	EGH66-1-15
20	EG6-1-20	EG66-1-20	EGH66-1-20
25	EG6-1-25	EG66-1-25	EGH66-1-25
30	EG6-1-30	EG66-1-30	EGH66-1-30
40	EG6-1-40	EG66-1-40	EGH66-1-40
50	EG6-1-50	EG66-1-50	EGH66-1-50

COLOR ABBREVIATION
WH = WHITE
BK = BLACK
RD = RED (Special Order)

ORDERING INFORMATION:

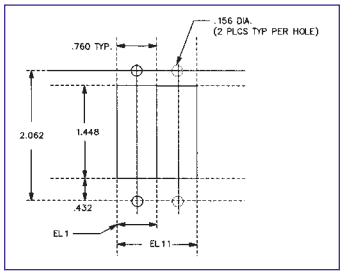
Combine the part number and the color abbreviation. All breakers are available by the piece.

MAGNETIC CIRCUIT BREAKERS "C" FRAME

Designed for use in the industrial, military and marine applications. "C" frame breakers are suitable for use in any situation where precision operation is required. Magnetic circuit breakers are a low cost answer to power switching and reliable circuit protection. Temperature will not affect the operation of magnetic circuit breakers, as it does with thermal breakers or fuses. Available in DC-50/60Hz through 50 Amps and DC above 50 amps. Stocked in white and black handles.

FEATURES:

- Series Trip
- "Trip Free"
- Magnetic Operation, operates as a function of current only
- Panel mounted
- Rectangular Panel Cutout: .500 width, 1.000 height
- Power Switching



PERCENTAGE OVERLOAD VS. TRIP TIME IN SECONDS AT +25˚C (VERTICAL MOUNT)

DELAY	100%	135%	150%	200%	400%	600%	800%	1000%
DC/60Hz LONG DELAY	NO TRIP	6.5-115	3-65	1.2-20	.08-3	.018-2.5	.015-.8	.009-.25

"C" FRAME INTERRUPTING CAPACITY, AMPS

(REFER TO TABLE 5 - TECHNICAL DATA FOR ABYC CIRCUIT BREAKER MIN. AMPERE INTERRUPTING CAPACITY)

VOLTAGE			CURRENT RATING FULL LOAD AMPS	INTERRUPTING CAPACITY UL/CSA WITHOUT BACKUP FUSE
MAX. RATING	FREQUENCY	PHASE		
65	DC		71 - 100	5000
80	DC		0.02 - 70	7500
125/250	50/60Hz	1Ø	0.02 - 50	3000

TECHNICAL SPECIFICATION AND TEST RESULTS

Series Trip: Long Delay

Inrush Pulse Tolerance: 12 times rated current

Operating Temperature: -40˚C to 85˚C

Shock: Withstands 100g or more without tripping while carrying full rated current per MIL-Std-202, Method 213.

Vibration: Withstands 10g without tripping while carrying full rated current per MIL-Std-202, Method 204.

Endurance: Per UL 1077 (6000 operations at rated load plus 4000 operations with no load). Tested at a maximum rate of 6 times per minute.

Moisture Resistance: Designed to meet the requirements of MIL-C-55629, when tested in accordance with MIL-STD-202, Method 106.

Salt Spray: Designed to meet the requirements of MIL-C-55629, when tested in accordance with MIL-STD-202, Method 101.

Trip Free: Will trip open even when forcibly held on or restrained.

Meets: UL recognized, CSA Certified

RATED AMPS	SINGLE POLE	*DOUBLE POLE DOUBLE THROW	*TRIPLE POLE TRIPLE THROW
15	EL1-1-15BK		
20	EL1-1-20BK		
25	EL1-1-25BK		
30	EL1-1-30BK	EL11-1-30BK	
40	EL1-1-40		
50	EL1-1-50	EL11-1-50BK	EL111-1-50BK
60	EL1-1-60	EL11-1-60BK	
70	EL1-1-70		
80	EL1-1-80		
90	EL1-1-90		
100	EL1-1-100	EL11-1-100BK	

COLOR ABBREVIATION
WH = WHITE
BK = BLACK

*White Handle Available Upon Request

ORDERING INFORMATION:

Combine the part number and the color abbreviation. All breakers are available by the piece.

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BLUE SEA SYSTEMS

BREAKER TOGGLE GUARD

EG6-GUARD

Protects critical function circuits from being accidentally switched off at the breaker. Fits all "A" frame breakers. Mounts on the surface of the panel with 2, 6-32 x 3/8" mounting screws (included).

P/N: EG6-GUARD

ORDERING INFORMATION:

Available by the piece.

AC LOCKOUT SLIDES

AC Lockout slides allow only one AC circuit breaker to be activated at a time. Both styles use the circuit breaker mounting screw holes, no special panel modifications required.

P/N: EG-SLIDE

Fits all double pole "A" frame circuit breakers found on page 57.

P/N: EL-SLIDE

Fits all double pole "C" frame circuit breakers found on page 58.

ORDERING INFORMATION:

Available by the piece.

EG-SLIDE

EL-SLIDE

ADAPTER PLATES

"A" frame to "C" frame adapter plates fit exactly over our EG6 breakers, converting its face design to an EL1 rectangular type. With this adapter, a EG6 breaker can easily be used in a pre-cut EL1 slot.

P/N: EG-EL

ORDERING INFORMATION:

Available by the piece.

EG-EL

BREAKER BOOTS AND COVERS

Pacer stocks a variety of breaker boots and covers to protect and increase the life span of our circuit protection devices. All boots and covers protect panel mounted toggle type and push button type breakers. Constructed from silicone rubber with nickel-plated brass nuts. Temperature range -160˚F to 500˚F. Resists salt, water, acids, weather, dust, sunlight, and ozone.

SCREW ON BREAKER BOOTS, FOR PUSH BUTTON TYPE BREAKERS

PART NUMBER	COLOR	HEIGHT	THREAD	FOR USE WITH
ES-PBCAP	CLEAR	9/16"	3/8"	ETS658 SERIES
ES-PBLCAP	CLEAR	15/16"	3/8"	ETS45 SERIES
ES-PB41CAP	CLEAR	Variable	15/32"	ETS41 SERIES
ES-PBCVR	CLEAR	9/16"	3/8"	ETS658 SERIES
ES-PBCVR-BK	BLACK	9/16"	3/8"	ETS658 SERIES

ES-PBCVR-BK

ES-PBCVR

BOOTS FOR TOGGLE TYPE BREAKERS

PART NUMBER	COLOR	MOUNT METHOD	MARKED	FOR USE WITH
EG-SGLBOOT	CLEAR	Behind Panel	ON	"A" Frame Sgl. EG6
EG-DBLBOOT	CLEAR	Behind Panel	ON	"A" Frame Dbl. EG66 & EGH66
EL-SGLBOOT	CLEAR	Front Panel	ON/OFF	"C" Frame Sgl. EL1
EL-DBLBOOT	CLEAR	Front Panel	ON/OFF	"C" Frame Dbl. EL11

ORDERING INFORMATION: Available by the boot.

BREAKER BUS BARS

Tinned copper breaker bus bars are designed to tie together the load side of "A" frame and "C" frame breakers. Available in 1ft. and 3ft. lengths.

PART NUMBER	THICKNESS	LENGTH
EBB-BRKR1	1/8"	1 FT.
EBB-BRKR3	1/8"	3 FT.

ORDERING INFORMATION: Available by the piece.

BREAKER MOUNTING SCREWS

Black painted, general purpose, Phillips round head screws 6-32 (3/8) Long

P/N: EGF-6-32-375

P/N: EGF-6-32-3125 (5/16) Long

ORDERING INFORMATION:

Available in 50 piece bags.

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PANEL MOUNT THERMAL BREAKERS

SERIES 658: Economical, series trip, thermal breakers. White or black actuators.
SERIES 45: Cost effective, series trip, thermal breakers with ON/OFF switching.
SERIES 41: Series trip, thermal breakers with ON/OFF switching. Corrosion, humidity and fungus resistant housing. Ampere ratings to 70 AMPS.

SERIES 658

SERIES 45

SERIES 41

SERIES	658	45	41 (<30 AMPS)	41 (30A through 70A)
DESCRIPTION	Series trip	Series trip. Push ON, push OFF switching, B & W reset button for trip indication	Series trip. Push-pull ON-OFF switching	Series trip. Push-pull ON-OFF switching
CURRENT RATINGS	5 through 30 AMPS	5 through 30 AMPS	15 through 25 AMPS	30 through 70 AMPS
MAXIMUM VOLTAGE RATINGS	250V AC or 28V DC	250V AC or 28V DC	115V AC or 28V DC	115V AC or 28V DC
MAXIMUM INTERRUPTING	2000A UL tested according to standard 1077	10 times rated current of circuit breaker, normal use. UL rated up to 2000A	10 times rated current for current ratings 1-5A, 1000A for current ratings 8-25A	2000A at 28V DC
LIFE	2000 cycles at rated current	6000 cycles (UL 1077) 10,000 mechanical	4000 cycles at 200% rated current	2000 cycles at rated current
TERMINALS	.250 quick connect	.250 quick connect 30A have screw terminals	Screw terminals	Screw terminals
APPROVALS	UL 1077 up to 25A CSA up to 25A VDE	UL 1077 up to 16A CSA up to 15A VDE	will meet MIL-E-5272C	will meet MIL-E-5272C
DESIGN NOTES	N/A	N/A	Melamine housing. Corrosion, humidity, and fungus resistant	Melamine housing. Corrosion, humidity, and fungus resistant
TRIPPING TIMES IN SECONDS AT 70F (21C)				
100%	NO TRIP	NO TRIP	NO TRIP	NO TRIP
200%	1.5 - 8	10 - 40	10 - 65	12 - 80
300%	1 - 5	3 - 18	3 - 20	3 - 25
400%		2 - 9	1.5 - 12	1.2 - 12
500%		1 - 6	1 - 8	1 - 7
600%		.6 - 5	.6 - 6	.5 - 5
1000%		.2 - 2.5	.2 - 3.5	.1 - 2
RATED AMPS	**P/N**	**P/N**	**P/N**	**P/N**
5	ETS658-5	ETS45-5	N/A	
10	ETS658-10	ETS45-10	N/A	
15	ETS658-15	ETS45-15	ETS41-15	
20	ETS658-20	ETS45-20	ETS41-20	
25	ETS658-25	ETS45-25	ETS41-25	
30	ETS658-30	ETS45-30		ETS41-30
40				ETS41-40
50				ETS41-50
60	(For clear caps use P/N)	(For clear caps use P/N)	(For clear caps use P/N)	ETS41-60
70	(ES-PBCAP, ES-PBCVR, or ES-PBCVR-BK) Previous Pg.	(ES-PBLCAP) Previous Pg.	(ES-PB41CAP) Previous Pg.	ETS41-70

ORDERING INFORMATION:

Available in 50 piece bags.

***FOR SERIES 658 BREAKERS ADD WH=WHITE OR BK=BLACK TO THE END OF THE P/N.**
EX: ETS658-10WH - SERIES 658 w/WHITE ACTUATOR

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BUSSMANN SERIES 187 MRCB MARINE RATED CIRCUIT BREAKERS

Series 187 MRCB breakers provide high amperage (25-150 AMPS) circuit protection where panel mounting can be difficult. Surface mount breakers combine manual switching and reliable circuit protection into one unit. "Trip-free" and Vapor proof (conforming to SAE J1171), they are safe for installation aboard gas powered boats.

SPECIFICATIONS:

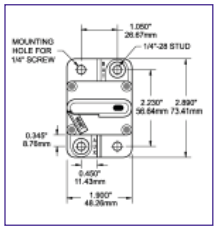
- Circuit Breaker Type: Type III Switchable/ Manual Reset Bi-Metal Blade
- Voltage Rating: 48 Volts DC Maximum
- Interrupt Rating: 5000 Amperes @ 12 Volts DC
  3000 Amperes @ 24 Volts DC
  1500 Amperes @ 42 Volts DC

AMPERAGE	PART NUMBER
25	EMRCB-25
50	EMRCB-50
60	EMRCB-60
80	EMRCB-80
100	EMRCB-100
120	EMRCB-120
135	EMRCB-135
150	EMRCB-150

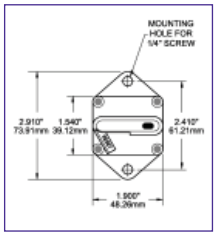
FEATURES:

- Switching and circuit protection in one device
- "Trip Free" design cannot be held on during fault current conditions
- Ignition protected, all components meets SAE1171 external circuit protection requirements
- Weatherproof
- Terminal Stud 5/16" - 18
- **Large clearance around terminal studs accept heavy gauge wire lugs**

SERIES 185 BREAKERS



Surface Mount



Panel Mount

Series 185 breakers provide high amperage (40-150 AMPS) circuit protection where panel mounting can be difficult. Series 185 breakers are "Trip-free" and Vapor proof (conforming to SAE J1171), they are safe for installation aboard gas powered boats. Series 185 breakers maintain functionality not found in other panel mount or manual reset breakers.

FEATURES:

- Switching and circuit protection
- Waterproof
- Trip-free
- Vapor Proof (SAE J1171)
- Interrupt Capacity: 3000Amperes
- Circuit Breaker Type: Thermal
- Maximum Voltage: 30 Volts DC
- Surface and Panel Mount
- Terminal Stud 1/4" - 28

Panel Mount Series available by special order

RATED AMPS	SURFACE MOUNT PART NUMBER	PANEL MOUNT PART NUMBER
30	ESM-30	EPM-30
40	ESM-40	EPM-40
50	ESM-50	EPM-50
60	ESM-60	EPM-60
70	ESM-70	EPM-70
80	ESM-80	EPM-80
100	ESM-100	EPM-100
120	ESM-120	EPM-120
135	ESM-135	EPM-135
150	ESM-150	EPM-150

ORDERING INFORMATION:

Available by the piece.

THERMAL "PUSH-TO-RESET" CIRCUIT BREAKERS

Klixon commercial type circuit breakers combine trip-free protection with fast response time. Their high rupture capacity and resistance to shock and vibration are unequaled in their simple design, rugged construction, reliable performance, and long life.

FEATURES:

- Weatherproof
- Trip-free
- Manual reset
- Amperage stamped on the actuator
- Ignition protected
- Panel Mounted

STYLE TYPE	STYLE 1	STYLE 2
CURRENT	AC/DC	AC/DC
INTERRUPT CAPACITY	600 AMPS AT 30 VDC	900 AMPS AT 30 VDC
TERMINALS	8/32" NC-2 Screw	.25-28 x .50 Hex Head Screw
MOUNTING METHOD	Panel, w/eyelet #10 Screw	Panel, w/eyelet #10 Screw
SHOCK RESISTANCE	In excess of 10G	In excess of 10G
RATED AMPS	**PART NUMBER (STYLE 1)**	**PART NUMBER (STYLE 2)**
5	EPTR-5	
10	EPTR-10	
15	EPTR-15	
20	EPTR-20	
25	EPTR-25	
30	EPTR-30	
40	EPTR-40	
50	EPTR-50	
60		EPTR-60
70		EPTR-70
80		EPTR-80
90		EPTR-90
105		EPTR-105
120		EPTR-120
150		EPTR-150

ORDERING INFORMATION:

Order by the piece.

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ANL TYPE FUSES, FUSE HOLDERS AND BLOCKS

ANL FUSES

FEATURES:
- Low voltage limiter, 32Volts AC or Less
- Interrupt Capacity: 6,000 AMPS
- Isolates faults in battery operated systems.
- Silver-plated copper links
- Link element visible through mica window.

RATED AMPS	PART NUMBER
35	EANL35
40	EANL40
50	EANL50
60	EANL60
80	EANL80
100	EANL100
130	EANL130
150	EANL150
175	EANL175
200	EANL200
225	EANL225
250	EANL250
275	EANL275
300	EANL300
350	EANL350
400	EANL400
500	EANL500
600	EANL600

ORDERING INFORMATION:
Available by the piece.

BUSSMANN 4164

P/N: EFB-ANL

FEATURES:
- Single-pole, stud terminal
- Molded thermoplastic base
- Two countersunk mounting holes on 1-in centers for #10 flat head screws
- Tightening torque is 120 in-lbs
- 125V
- L 3.38" x W 0.95" x H 1.62"

BLUE SEAS LIGHT ANL FUSE BLOCK WITH COVER

FEATURES:
- Clear insulating cover protects conductive components – satisfies ABYC/USCG requirements
- 180 degree access with cover on for 14-2/0 AWG wire
- Stainless steel studs and fasteners prevent corrosion
- UL 94V0 black base resists high heat
- For use on systems up to 48 volts DC
- Maximum Amperage 300 Amperes DC
- Large 5/16" M8 Studs
- L 4.5" x W 1.25" x H 1.67" (Min)

P/N: EFB-ANL-LT

CLASS "T" FUSES

FEATURES:
- Extremely fast short circuit response
- 20,000 Ampere interrupt capacity
- UL Rated for DC applications under UL 198L

AVAILABLE AMP SIZES

RATED AMPS	PART NUMBER
110	ETF-110
125	ETF-125
150	ETF-150
175	ETF-175
200	ETF-200
225	ETF-225
250	ETF-250
300	ETF-300
350	ETF-350
400	ETF-400

ORDERING INFORMATION: Available by the piece

BLUE SEA ANL H/D FUSE BLOCK

FEATURES:
- 750 Ampere rating achieved with large heat dissipating, tin-plated, copper mounting block
- Clear insulating cover satisfies ABYC/USCG requirements
- For use on systems up to 48 Volts DC
- Large terminals accept 5/16" or M8 ring terminals up to 4/0
- L 7" x W 2"

P/N: EFB-ANL-HD

CLASS "T" FUSE BLOCK

FEATURES:
- Clear Lexan cover insulates all conductive parts, satisfying ABYC/USCG requirements
- For use on systems up to 160V DC
- Large 3/8" Stud Terminals
- Large heat dissipating, tin copper, mounting blocks
- 2 (#8) accessory terminals located on each end

P/N: EFB-T

ORDERING INFORMATION: Order by the piece.

AGC TYPE GLASS FUSES AND FUSE HOLDERS

FEATURES:
- Dimensions: 1/4" dia. By 1-1/4" long

ORDERING INFORMATION:
Order by multiples of 5.

RATED AMPS	PART NUMBER
.5	EAGC.5
1	EAGC1
1.5	EAGC1.5
2.5	EAGC2.5
3	EAGC3
5	EAGC5
7.5	EAGC7.5
10	EAGC10
15	EAGC15
20	EAGC20
25	EAGC25
30	EAGC30

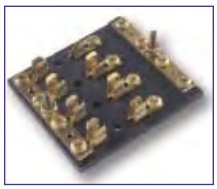
BLUE SEA SYSTEMS BLOCK SYSTEM

Blue Sea Systems offers a unique, long lasting, fuse block. The fuse block utilizes all nickel-plated metal components. Beryllium copper contact clips are rated at 30 Ampere. The unique clear insulating covers with label recesses protect all conductive parts, satisfying all ABYC/USGA requirements. Spare fuses can also be stored in the cover. Fits AGC fuses and all other 3AG Glass fuses.

FEATURES:
- Material: Glass-filled Nylon
- Maximum Amperage per Circuit: 30 Amperes
- Maximum Amperage per Block: 100 Amperes
- Maximum Voltage: 32 Volts DC
- Clear, insulating, plastic cover with label recesses
- Spare fuse storage
- Nickel plated metal components
- Independent ground bus

NUMBER OF CIRCUITS	PART NUMBER
6	EFB30-6IBC

AGC FUSE BLOCKS



BRASS FUSE BLOCKS
Made with brass clips and screws with a common bus bar connected to the fuse clips, and an additional independent bus.

NUMBER OF CIRCUITS	PART NUMBER	BASE	MATERIAL CLIP/SCREW
4	EFB20-4IB	BAKELITE	BRASS
6	EFB20-6IB	BAKELITE	BRASS
8	EFB20-8IB	BAKELITE	BRASS

AGC FUSE HOLDERS

WATER-RESISTANT
Accepts 18 through 12 AWG wire, 30 AMP maximum. One piece construction, recommended for use where holder will come into contact with dust, dirt, moisture and harsh environments.

P/N: EFH-WP

MOLDED WATER-RESISTANT
A push together, water-tight, inline fuse holder, with an 8 inch, 14 or 10 AWG wire loop molded into the assembly. Made with heat-resistant, non-breakable plastic. AGC type fuses included.

PART NUMBER	WIRE AWG & FUSE TYPE
EFH-MWP30	10 AWG, 30 AMP AGC FUSE
EFH-MWP15	14 AWG, 15 AMP AGC FUSE

PANEL MOUNT "KNOB TYPE"
Recommended panel cutout .505 diameter.
Terminals: .250 quick connects.

P/N: EFH-PMKT

IN-LINE "KNOB TYPE"
Spring loaded with wire included.

P/N: EFH-KT

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ATO/ATC TYPE FUSES

FEATURES:
- Standard 1/4" blade type automotive fuses.

ORDERING INFORMATION:
Order by multiples of 5.

RATED AMPS	PART NUMBER	COLOR
1	EATC1	BLACK
3	EATC3	VIOLET
5	EATC5	TAN
7.5	EATC7.5	BROWN
10	EATC10	RED
15	EATC15	LT. BLUE
20	EATC20	YELLOW
25	EATC25	NATURAL
30	EATC30	LT. GREEN

ATO/ATC FUSE BLOCKS

FEATURES:
- Clear insulating cover with label recess
- Cover insulated conductive parts, satisfying ABYC/USCG requirements
- Tin-plated copper buses and fuse clips give 30 ampere rating per circuit
- Accepts ATO and ATC fast acting blade type fuses and plug in style circuit breakers
- Max amperage per circuit: 30
- Max amperage per block: 100
- Maximum voltage 32V
- Integrated ground bus

PART NUMBER	CIRCUITS	SPARE STORAGE
EFB30-5025	6	1
EFB30-5026	12	3

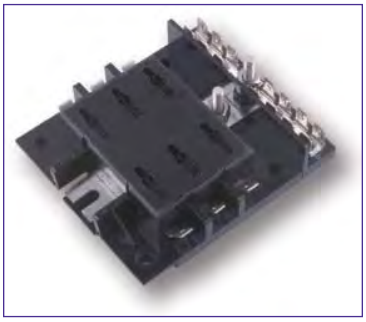
EFB30-5025 EFB30-5026

Patented ATC/ATO style fuse blocks allow you to design your own fuse panel. Interlocking modules in various sizes snap together to create any configuration needed. All blocks have 1/4" tab terminals and 8-32 threaded screws. Tin plated copper contacts, flame retardant glass reinforced polyester base and cover. Rated for 30 AMP maximum per circuit, 160 AMP Total for the block.

FEATURES:
- Accepts ATC/ATO fuses
- Modular, various sizes will snap together
- Tinned plated copper contacts
- Maximum: 30 AMP per Circuit
- Maximum: 160 AMP for Total Block

ORDERING INFORMATION: Order by the piece.

NUMBER OF CIRCUITS	PART NUMBER
4	EFB30-4ATC
6	EFB30-6ATC
10	EFB30-10ATC
14	EFB30-14ATC



ATC FUSE HOLDERS

WATERPROOF

Molded side mount ATC or ATO fuse holder. Made with black hi-temp Alcryn construction. 12 AWG leads. Rated at 30 AMPS.

P/N: EFH-ATC-WP

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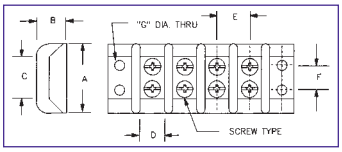
TERMINAL BLOCKS

Flat mount terminal blocks are used extensively in the marine industry for a variety of purposes, including: simplifying wiring work, eliminating splicing, stopping short circuits, etc. Commonly used in panels, electronic and electrical equipment, and in wire harnesses. Pacer stocks double row terminal blocks composed of general purpose Phenolic with nickel plated brass hardware for maximum life span in marine environments. Their triangular base design and solid sealed back provide added stability and corrosion resistance from moisture and condensation underneath the block.



FEATURES:

- Heat Resistance: 290˚F Continuous
- Dielectric strength: 350Kv
- Nickel-plated brass hardware
- Phenolic base
- Eliminates Splicing and Simplifies Wiring
- UL recognized, CSA certified

NUMBER OF POSITIONS	20 AMP PART NUMBER	30 AMP PART NUMBER	50 AMP* PART NUMBER
2	E20TB2	E30TB2	E50TB2
3	E20TB3	E30TB3	E50TB3
4	E20TB4	E30TB4	E50TB4
6	E20TB6	E30TB6	E50TB6
8	E20TB8	E30TB8	
10	E20TB10	E30TB10	E50TB10
12	E20TB12	E30TB12	
15	E20TB15	E30TB15	
20	E20TB20	E30TB20	

*Open back design.

SERIES	RATED VOLTS	WIRE RANGE	SCREW TYPE	DIMENSION A	B	C	D	E	F	G
20 AMP	250V	16-14 AWG	6-32 x 1/4"	1.12	.53	.75	.34	.44	.42	.175
30 AMP	600V	14-10 AWG	8-32 x 5/16"	1.31	.71	.94	.42	.56	.50	.203
50 AMP	600V	10-8 AWG	10-32 x 3/8"	1.81	.75	1.06	.47	.69	.62	.275

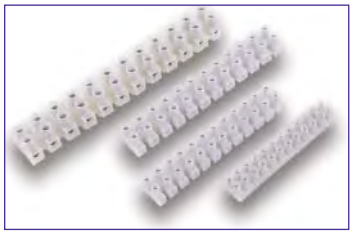
TERMINAL BLOCK JUMPERS

Terminal block jumpers are constructed of nickel plated brass and are available in two styles; enclosed and slotted.

ORDERING INFORMATION: Available by the piece.

PART NUMBER	STYLE	FOR USE WITH
E20TBJ	ENCLOSED	20 AMP BLOCKS
E20TBJ-S	SLOTTED	20 AMP BLOCKS
E30TBJ	ENCLOSED	30 AMP BLOCKS
E30TBJ-S	SLOTTED	30 AMP BLOCKS
E50TBJ	ENCLOSED	50 AMP BLOCKS

EUROPEAN TERMINAL BLOCKS



Double row designed terminal blocks are constructed from Polyamide PA 6 nylon with recessed, brass captive screws and tinned plated brass inserts. The wire guards are constructed from stainless spring steel. Protective covers are available for the E400-12 position terminal block.

FEATURES:

- Constructed from 6/6 Nylon
- Tinned Plated Brass Inserts
- Easily Cut to the Specific Number of Circuits Needed
- Recessed Screws and Terminals to Avoid Shock Hazard
- Closed back design
- Eliminates Splicing and Simplifies Wiring
- UL recognized, CSA certified

PART NUMBER	NUMBER OF POSITIONS	CURRENT RATINGS	RATED VOLTS	WIRE RANGE
E150-12	12	15	300	16-14 AWG
E200-12	12	20	300	14-12 AWG
E400-12	12	40	600	12-10 AWG
E650-12	12	65	600	10-8 AWG

ORDERING INFORMATION:
Available by the piece.

BLUE SEA SYSTEMS BUS BARS

Pacer stocks a wide variety of bus bars for many uses, including 500 and 600 AMP continuous rated power buses. Improper or corroded buses can rob precious voltage from a circuit. In starter and anchor windlass circuits where hundreds of amps flow, this could mean a big difference in cranking/lifting capability. **Connect all high amperage cables securely.**

FEATURES:

- 48 Volts DC Maximum
- Tinned Plated Brass Bus
- Base Material: Glass Reinforced Nylon

SINGLE POST BUSES

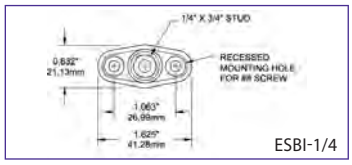
PART NUMBER WITHOUT BOOT	P/N WITH BOOT	STUD TYPE	CURRENT RATING	CONFIGURATION
ESB1-1/4	ESB1-1/4B	1/4"	N/A	MINI POWER POST
ESB1-5/16	ESB1-5/16B	5/16"	N/A*	POWER POST
ESB1-3/8	ESB1-3/8B	3/8"	N/A*	POWER POST
ESB1-8-5/16	ESB1-8-5/16B	5/16"	150	POWER POST w/8 (#8) SCREWS
ESB1-8-3/8	ESB1-8-3/8B	3/8"	150	POWER POST w/8 (#8)SCREW

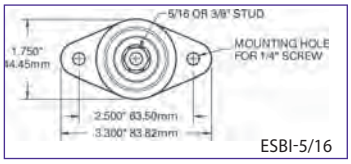
* Not Rated - Amperage flow is between terminals stacked on the post and is dependent on the wire and terminals used.

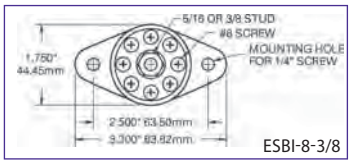
ESBI-1/4B

ESBI-5/16B

ESBI-8-3/8B





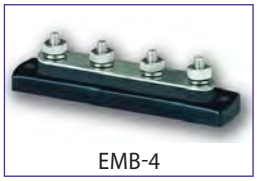


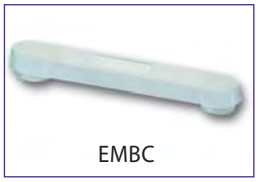
MINI BUSS

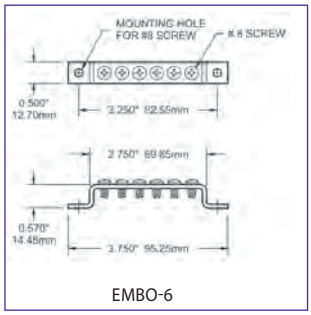
PART NUMBER	STUD TYPE	CURRENT RATING	CONFIGURATION	COVER PART NUMBER
EMB0-6	N/A	100	MINI BUS w/6 (#8) SCREWS	N/A
EMB2-5	(2) 10-24	100	MINI BUS w/2 POSTS AND 5 (#8) SCREWS	EMBC
EMB4	(4) 10-24	100	MINI BUS w/4 POSTS	EMBC

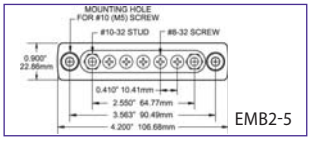
EMBO-6

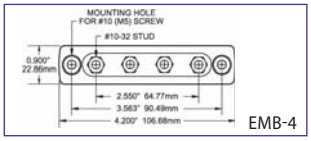
EMB2-5


EMB-4


EMBC







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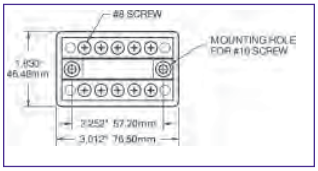
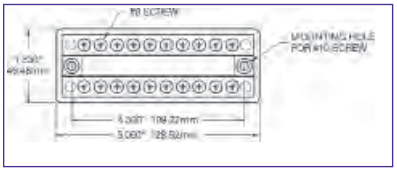
DUAL BUS COMMON BUSES

PART NUMBER	CURRENT RATING (AMPS)	CONFIGURATION	COVER PART NUMBER
EDB10	100	DUAL BUS, 5 x 8-32 SCREWS EACH SIDE	EDB10C
EDB20	100	DUAL BUS, 10 x 8-32SCREWS EACH SIDE	EDB20C





EDB10

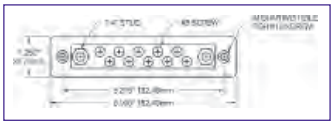
EDB10

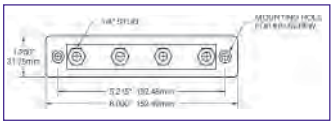
EDB10C

EDB20C

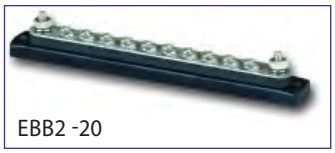
COMMON BUS BARS

PART NUMBER	STUD TYPE	CURRENT RATING (AMPS)	CONFIGURATION	COVER PART NUMBER
EBB2-10	(2) 1/4"	150	BUS w/2 POSTS AND 10 (#8) SCREWS	EBB2-10C
EBB2-20	(2) 1/4"	150	BUS w/2 POSTS AND 20 (#8) SCREWS	EBB2-20C
EBB4	(4) 1/4"	150	BUS w/4 POSTS	EBB2-10C





EBB2 -10


EBB2 -20

EBB4

EBB2 -10C

EBB2 -20C

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MAXI BUS BARS

PART NUMBER	STUD TYPE	CURRENT RATING (AMPS)	CONFIGURATION	COVER PART NUMBER
EMXB2-12	(2) 5/16"	250	BUS w/2 POSTS AND 12 (#10) SCREWS	EMXBC
EMXB4	(4) 5/16"	250	BUS w/4 POSTS	EMXBC

EMXB2-12

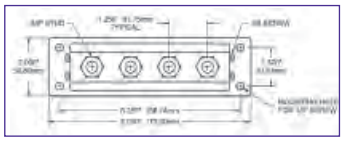
EMXB4

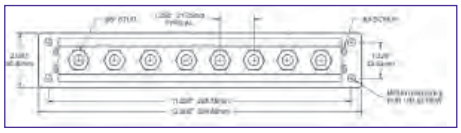
EMXBC

POWERBAR

Blue Sea Systems power bar is a unique high amperage power distribution bus. Constructed from tinned-plated CDA110 copper with a GE Lexan polycarbonate base. Rated at 48 volts DC maximum.

PART NUMBER	STUD TYPE	CURRENT RATING (AMPS)	CONFIGURATION	COVER PART NUMBER
EPB2	(2) 3/8"	600DC	BUS w/2 POSTS PKG w/2 BOOTS	
EPB4-4	(4) 3/8"	600DC	BUS w/4 POSTS AND 4 (#8) SCREWS	EPB4-4C
EPB8-4	(8) 3/8"	600DC	BUS w/8 POSTS AND 4 (#8) SCREWS	





EPB4-4

EPB8-4

EBP4 -4C

COMMON, HEAVY DUTY, BUS BARS

Constructed from 1/4" thick nickel plate copper with nickel plated bronze studs and durable Lexan mounted pads.

PART NUMBER	STUD TYPE	CURRENT RATING (AMPS)
EPB3W	5/16", 3/8", 5/16"	500AMPS
EPB4W	5/16", (2)3/8", 5/16"	500AMPS
EPB7W	5/16", (5)3/8", 5/16"	500AMPS

EPB3W

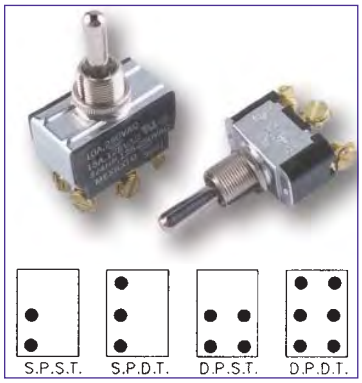
EPB4W

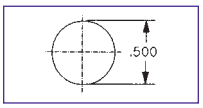
EPB7W

TYPICAL USES FOR SWITCHES ON BOATS

ON-OFF	OFF-(ON)	ON-(OFF)	ON-ON	ON-OFF-ON	(ON)-OFF-(ON)	ON-OFF-(ON)
Accessories	Horn	Alarm Silence	Meter-Read	Bilge Pump	Meter Read	Bilge Pump
Auto-Pilot	Head Flush		Battery 1/Battery 2	Auto/Off/Man.	Port/Off/Starboard	Auto/Off/(Man)
Bilge Pumps	Macerator		Bilge Pumps	Aerator	Trim Tabs	Wiper/Washer Lights
Pre-Heat			Auto., Man.	Timed/Off/Man.	Up/Off/Down	Wipe/Off/(Wash)
Converter			Fuel Gauge	Spotlight	Windlass	
Deck Wash Pump			Fuel Tank -	Spot/Off/Flood	Raise/Off/Lower	
Depth Finder			Gauge Select	Navigation Lights	Hatch	
Loran			Port/Starboard	Run/Off/Anchor	Open/Off/Close	
Radios			Motor Reverse	Motor Control		
Recorder			Forward/ Reverse	Fwd/Off/Rev.		
Stereo						
Water Pressure						

METAL BAT TOGGLE SWITCHES





Toggle switches are rated at 15A/120VAC, available in single or double pole with functions ranging from single and double throw to momentary single and double throw. All switches contain a slow-make, slow-break contact mechanism. UL, CSA and VDE approvals.

TECHNICAL DATA:

Metal bat toggle switches

MATERIAL:

- Base: Phenolic
- Actuator (Bat): Brass/Nickel plated
- Bushing: Brass/Nickel plated

CHARACTERISTICS:

- Dielectric Strength 1000V (minimum)
- Insulation Resistance 100 MegOhms (minimum)
- Rating: 15A 125VAC
  10A 250VAC
  3/4" HP 125-250VAC

MEETS:

UL, CSA and VDE Approvals

MOUNTING METHOD:

- Panel mounting hole: 1/2" Diameter.
- Bushing Length: .468"

TERMINATION:

Screw: Size 6-32NC-2

DESCRIPTION:

S.P.S.T. = Single Pole, Single Throw
S.P.D.T. = Single Pole, Double Throw
D.P.S.T. = Double Pole, Single Throw
D.P.D.T. = Double Pole, Double Throw

SINGLE POLE SWITCHES

PART NUMBER	SWITCH FUNCTION	DESCRIPTION
ES-B2FA54	ON-OFF	S.P.S.T.
ES-B2FB54	ON-ON	S.P.D.T.
ES-B2FC54	ON-OFF-ON	S.P.D.T. CENTER OFF
ES-B2GE54	ON-ON-ON	S.P.T.T
(MOMENTARY)		
ES-B6FA54	(ON)-OFF	S.P.S.T.
ES-B6FA58	ON-(OFF)	S.P.S.T
ES-B6FB54	ON-(ON)	S.P.D.T
ES-B6FC54	(ON)-OFF-(ON)	S.P.D.T. CENTER OFF
ES-B6FC58	ON-OFF-(ON)	S.P.D.T. CENTER OFF

DOUBLE POLE SWITCHES

PART NUMBER	SWITCH FUNCTION	DESCRIPTION
ES-B2GK54	ON-OFF	D.P.S.T.
ES-B2GL54	ON-ON	D.P.D.T.
ES-B2GM54	ON-OFF-ON	D.P.D.T. CENTER OFF
(MOMENTARY)		
ES-B6GK5E	(ON)-OFF	D.P.S.T.
ES-B6GK5S	ON-(OFF)	D.P.S.T
ES-B6GL5E	ON-(ON)	D.P.D.T
ES-B6GM5S	(ON)-OFF-(ON)	D.P.D.T. CENTER OFF
ES-B6GM5E	ON-OFF-(ON)	D.P.D.T. CENTER OFF
ES-B6GG54	(ON)-ON-OFF	D.P.D.T. IGNITION SWITCH

ORDERING INFORMATION: Order by the piece.

SILICONE RUBBER BOOTS

AVAILABLE IN BLACK OR WHITE

Silicone rubber boots are resistant to salt water, acids, weather, dust, sunlight and ozone. One piece bonded construction. Designed for use on metal bat toggle switches.

FEATURES:

- Molded Black Silicone Rubber
- Height: 15/16"
- Thread: 15/32"

P/N: ES-BOOT - (Black)
P/N: ES-BOOT-W - (White)

V-SERIES CONTURA II & III

The V-Series CONTURA II and III versions, with sealed front panel components, are certified to IP66 and IP68, signifying complete protection against dust, prolonged spray and submersion under pressure. Contura's are recognized at UL1500 - Ignition Protection for Marine Products. These switches feature removable actuator styles and colors, available in single and double pole configurations, and can be illuminated with bar or square shaped lenses. All switches are 12V black base. Actuators are now sold separately. Pacer has a full line of screened Contura II actuators that display both the Legend and ISO symbol.

NOTE: All switches and actuators are sold separately.

SINGLE POLE SWITCHES

PART NUMBER	SWITCH FUNCTION	LAMPS / VOLTS	DESCRIPTION
ES-V1DA	ON-OFF	1 DEP. / 12V	S.P.S.T.
ES-V4DA	ON-ON	2 IND. / 12V	S.P.D.T.
ES-V5DA	ON-(ON)	2 DEP. / 12V	S.P.D.T.
ES-V6DA	ON-OFF-ON	2 DEP. LAMPS / 12V	S.P.D.T. CTR OFF
(MOMENTARY)			
ES-V2DA	(ON)-OFF	1 DEP. / 12V	S.P.S.T.
ES-V3DA	ON-(OFF)	1 DEP. / 12V	S.P.S.T.
ES-V8DA	(ON)-OFF-(ON)	2 DEP. / 12V	S.P.D.T. CTR OFF
ES-V7DA	ON-OFF-(ON)	2 DEP. / 12V	S.P.D.T. CTR OFF

DOUBLE POLE SWITCHES

PART NUMBER	SWITCH FUNCTION	LAMPS / VOLTS	DESCRIPTION
ES-VADA	ON-OFF	1 DEP. / 12V	D.P.S.T.
ES-VCDA	ON-(OFF)	1 DEP. / 12V	D.P.S.T.
ES-VDDA	ON-ON	2 DEP. / 12V	D.P.D.T.
ES-VFDA	ON-(ON)	2 DEP. / 12V	D.P.D.T.
ES-VJDA	ON-OFF-ON	2 DEP. / 12V	D.P.D.T. CTR OFF
ES-VKDA	ON-OFF-(ON)	2 DEP. / 12V	D.P.D.T. CTR OFF
(MOMENTARY)			
ES-VBDA	(ON)-OFF	1 DEP. / 12V	D.P.S.T.
ES-VLDA	(ON)-OFF-(ON)	2 DEP. / 12V	D.P.D.T. CTR OFF

CHARACTERISTICS:

- Base Material: Polyester
- Dielectric Strength 2000V RMS
- Insulation Resistance 50 MegOhms
- Rating: 20A 12V

CERTIFICATIONS:

UL and CSA Tested in accordance with requirements of MIL STD 202F

MOUNTING METHOD:

- Panel mounting hole: See Dimensional Specifications.
- Can be mounted directly on the panel or mounted using the Contura mounting panel.

TERMINATION:

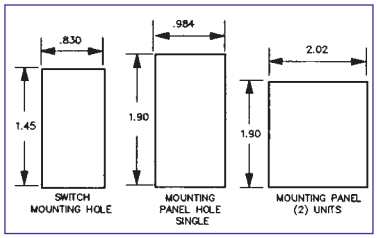
.250 Quick Connects with Barriers

DESCRIPTION:

S.P.S.T. = Single Pole, Single Throw
D.P.S.T. = Double Pole, Single Throw
S.P.D.T. = Single Pole, Double Throw
D.P.D.T. = Double Pole, Double Throw
IND. = Independent Lamp
DEP. = Dependent Lamp

*For more available options, contact Pacer Group

PANEL CUTOUTS



PANEL CUTOUTS

MOUNTING PANELS

PART NUMBER	DESCRIPTION
ES-CVMS	SINGLE MOUNTING PANEL
ES-CVMM	MIDDLE PANEL
ES-CVME	END PANEL
ES-CVHP	HOLE PLUG

CONTURA II ACTUATORS

All actuators are constructed of black thermoplastic polycarbonate with a hard nylon over-lay. Actuators contain one square red lens for single pole circuits or one square red lens and one narrow bar lens on bottom for double pole circuts

Available in: No Lens, Single or Double Lens.

PART NUMBER	DESCRIPTION
ESA-AZC	Black w/No Lens
ESA-ARC	Black w/SGL Red Lens
ESA-ASC	Black w/DBL Red Lens

ORDERING INFORMATION: Order by the piece.

CONTURA III ACTUATORS

All actuators are constructed of Black or White thermoplastic polycarbonate with a hard nylon over-lay. Styling incorporates three rows of bars on top and bottom. Actuators contain one narrow bar lens for single pole circuits or two narrow bar lens on top and bottom for double pole circuits. All lenses are red.

Available in: Black or White, No Lens, Single or Double Lens.

PART NUMBER	DESCRIPTION
ESA-CZC	Black w/No Lens
ESA-CMC	Black w/SGL Red Lens
ESA-CNC	Black w/DBL Red Lens
ESA-CZY	White w/No Lens
ESA-CMY	White w/SGL Red Lens
ESA-CNY	White w/DBL Red Lens

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NEW PRODUCT!

SCREENED CONTURA II ACTUATORS

Actuators are silk screened with a durable white ink that contains both the function and its associated ISO symbol
Part Number:

ESA-ACC

ESA-ACC1

ESA-ACC2

ESA-AERATOR

ESA-AFTBILGE

ESA-BILGE

ESA-BLOWER

ESA-CABIN

ESA-COCKPIT

ESA-COURTESY

ESA-ELECT

ESA-FRESHWATER

ESA-FUEL

ESA-FWDBILGE

ESA-HARDTOP

ESA-HORN - BLK

ESA-HORN (RED)

ESA-LIVEWELL

ESA-MACERATOR

ESA-NAV-ANC

ESA-PANEL

ESA-RAWWATER

ESA-SPREADER

ESA-STEREO

ESA-TRIMTABS

ESA-WASHDOWN

ESA-UNDERWATERLGTS

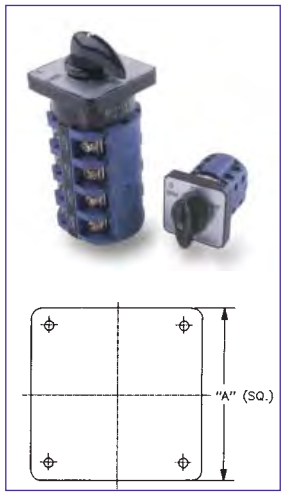
ESA-WINDLASS (NO LENS)

ESA-WIPER

- ESA-TRIMTAB (LASER CUT, NO LEGEND)
- Call Pacer for availability and minimum qty for custom screened actuators

"SHIP SHORE" POWER TRANSFER SWITCHES

Blue Line "Ship-Shore" power transfer switches are specifically designed for the boating industry. A simple manual selection with this switch provides a convenient method for obtaining electrical power from the ship's onboard generator or from the shore. Other positions can be provided when multisources of either ship and/or shore power are available. With the exception of the normal current carrying components, the entire switch body is made from rugged, non-corrosive nylon and melamine materials. This solid safety feature eliminates the possibility of electrical shock to the operator should any hot wire come into contact with the switch body. Power transfer "Rotary" switches come in a wide variety of configurations. Alternate configurations available upon request.



SWITCHES ARE DOUBLE THROW WITH "SHORE-OFF-GEN" 60° SWITCHING

PART NUMBER	NUMBER OF POLES	GENERAL PURPOSE (UL) RATED AMPS	THERMAL CURRENT AMPS	DIMENSIONS "A" (SQ.)
EPTS-2P-10A-S00	2	10	10	1.18"
EPTS-3P-10A-S00	3	10	10	1.18"
EPTS-2P-20A-S0	2	16	20	1.89"
EPTS-3P-20A-S0	3	16	20	1.89"
EPTS-2P-35A-S1	2	35	40	2.52"
EPTS-3P-35A-S1	3	35	40	2.52"
EPTS-4P-35A-S1	4	35	40	2.52"
EPTS-2P-50A-S1	2	50	63	2.52"
EPTS-3P-50A-S1	3	50	63	2.52"
EPTS-4P-50A-S1	4	50	63	2.52"
EPTS-2P-65A-S1	2	65	80	2.52"
EPTS-3P-65A-S1	3	65	80	2.52"
EPTS-4P-65A-S1	4	65	80	2.52"
EPTS-3P-100A-S2	3	100	125	3.46"
EPTS-4P-100A-S2	4	100	125	3.46"
EPTS-3P-150A-S2	3	150	200	3.46"
EPTS-4P-150A-S2	4	150	200	3.46"
MULTI-STEP "SHORE1, SHORE1 & 2, GEN"				
EPTS-MS-65A		65	80	2.52"

ALTERNATE ESCUTCHEON PLATES AVAILABLE UPON REQUEST

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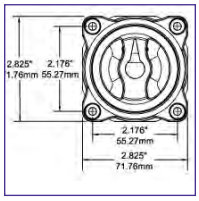
BLUE SEA SYSTEMS BATTERY SWITCHES

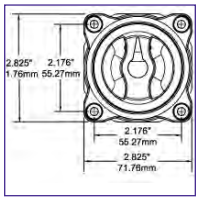
Blue Sea Systems compact high-amperage switches are vapor/ignition protected and UL listed.

M-Series Battery Switches

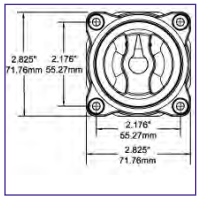
300 Amperes continuous rating for outboard and small inboard gasoline engines



EBS-6006



EBS-6007



EBS-6011

FEATURES:

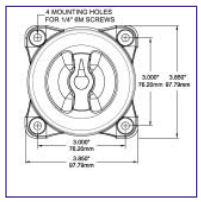
- Case design allows surface, front panel or rear panel design.
- 3/8" M10 Tin-plated copper studs
- 7/8" long studs
- Accepts up to 4/0 battery cable (Clearance 1.12")
- All non-corrosive marine grade metals

RATINGS	EBS-6006, EBS-6007	EBS-6011
Intermittent Rating: 5 min. (UL 1107)	500 Amperes DC	300 Amperes DC
Continuous Rating (UL 1107)	300 Amperes DC	200 Amperes DC

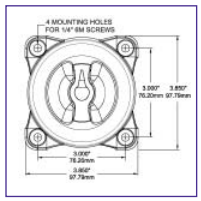
PART NUMBER	DESCRIPTION	APPLICATIONS
EBS-6006	Single Circuit ON/OFF	Switches a single battery to a single load group
EBS-6007	Selector	Switches battery bank 1 or battery bank 2 or BOTH to a single load using one switch
EBS-6011	Dual Circuit Plus	1) Switches two battery banks simultaneously with one simple ON/OFF switch while maintaining battery bank isolation, minimizing the risk of a dead start battery 2) The BOTH function offers the ability to combine the two battery banks in the event of a low start battery

E-Series Battery Switches

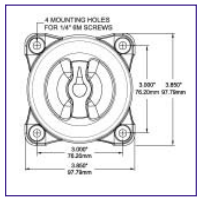
350 Amperes continuous rating for small inboards gasoline or diesel engines



EBS-9003E



EBS-9001E



EBS-5511E

FEATURES:

- Case design allows surface or rear panel design.
- All non-corrosive marine grade metals
- 3/8" M10 Tin-plated copper studs
- Fits Perko and Guest low amperage battery switch hole patterns
- 7/8" long studs
- Luminous label for low light reading
- Accepts up to 4/0 battery cable (Clearance 1.10")

RATINGS	EBS-9003E, EBS-9001E	EBS-5511E
Intermittent Rating: 5 min. (UL 1107)	600 Amperes DC	450 Amperes DC
Continuous Rating (UL 1107)	350 Amperes DC	300 Amperes DC

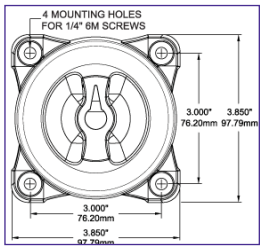
PART NUMBER	DESCRIPTION	APPLICATIONS
EBS-9003E	Single Circuit ON/OFF	Switches a single battery to a single load group
EBS-9001E	Selector	Switches battery bank 1 or battery bank 2 or BOTH to a single load using one switch
EBS-5511E	Dual Circuit Plus	3) Switches two battery banks simultaneously with one simple ON/OFF switch while maintaining battery bank isolation, minimizing the risk of a dead start battery 4) The BOTH function offers the ability to combine the two battery banks in the event of a low start battery

HD-Series Battery Switches

Up to 600 Amperes continuous rating for large diesel engines, high power output, and low heat generation.

EBS-3000

EBS-3002



FEATURES:

- Case design allows for surface or rear panel mount design.
- 1/2" M12 Tin-plated copper studs
- 7/8" long studs
- Accepts up to 4/0 battery cable (Clearance 1.10")
- All non-corrosive marine grade metals
- Fits Perko and Guest low amperage battery switch hole patterns
- Luminous label for low light reading

PART NUMBER	DESCRIPTION	APPLICATIONS
EBS-3000	Single Circuit ON/OFF	Switches a single battery to a single load group
EBS-3002	Selector	Switches battery bank 1 or battery bank 2 or BOTH to a single load using one switch

RATINGS	EBS-3000	EBS-3002
Intermittent Rating: 5 min. (UL 1107)	900 Amperes DC	700 Amperes DC
Continuous Rating (UL 1107)	600 Amperes DC	500 Amperes DC

BATTERY SELECTOR SWITCHES

Pacer stocks a large variety of battery selector switches. To select the proper battery switch size, make sure your engine's cold cranking amperage is lower than the momentary rating of the switch.

GUEST BATTERY SWITCHES

Guest switches feature an innovative "sweep contact" design, which provides a large, flat surface area for maximum conductivity and efficiency without the excessive wear, carbon tracking and contact burns of interior line-contact designs. All Guest battery switches safely provide positive battery disconnect, isolate all circuits, and conform to U.S.C.G. safety standard 183.410 for ignition protection.

EBS-2111

EBS-2112

EBS-2300A

EBS-2303A/
EBS-2304A

FEATURES:

- Heavy Duty Copper Sweep Contacts
- Positive Click Stop on all Positions
- For 12, 24, and 32 Volt Systems
- Marine UL Listed
- "Make Before Break" contacts allow selection
- 1 Year Limited Warranty of all positions except "Off" while engine is running

PART NUMBER	DESCRIPTIONS	DIMENSIONS	AMPS CONTINUOUS/MOMENTARY
EBS-2111	UNIVERSAL SELECTOR	5.5" DIAMETER x 2.63" DEPTH	230/345
EBS-2112	UNIVERSAL ON/OFF	5.5" DIAMETER x 2.63" DEPTH	230/345
EBS-2300A	HEAVY DUTY SELECTOR	5.5" SQUARE x 3.5" DEPTH	450/800
EBS-2303A	HEAVY DUTY ON/OFF	5.5" SQUARE x 3.5" DEPTH	450/800
EBS-2304A	EXTRA HEAVY DUTY ON/OFF	5.5" SQUARE x 3.5" DEPTH	600/1000

L-SERIES SOLENOID SWITCH WITH COIL ECONOMIZER

250 Ampere Classs 12/24 Volt.

PN: ESOL-9012

FEATURES:

- Hermetically sealed contacts
- Ignition protected
- Pulse circuit requires low current draw when contact is closed
- UL Recognized – UL 508 industrial control equipment
- Functions as a remote battery switch
- Activated by an ON-OFF switch mounted anywhere
- Used as a manual battery paralleling switch
- Integrated coil control minimizes heating and amperage draw
- Vaporproof
- Meets SAE J1171

Specifications

COIL CIRCUIT	
Input Voltage	9-36 Volts Maximum
Power Consumption	
- inrush max, 130ms	12-36 Volts/3.80 Amperes
- holding	12 Volts/0.13 Amperes 24 Volts/0.07 Amperes
MAIN POWER CONTACTS	
Inrush Rating: 0.25 sec. (10 repeats)*	2,000 Amperes DC
Voltage Rating	60 Volts DC
Stud Terminal Size	5/16" (m8)

*Blue Seas Systems Engine Starting Standard

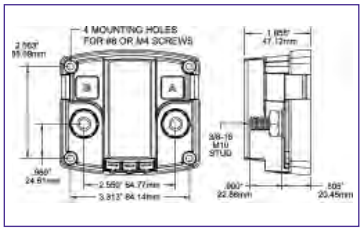
SI-SERIES ACR (START ISOLATION)

Automatically manages the charging of two battery banks and isolates batteries during starting to protect sensitive electronics.

FEATURES:

- 120 Ampere continuous rating—supports high-output alternators
- LED light indicates when batteries are combined and blinks when the undervoltage or starting isolation feature is engaged
- Side and bottom knockouts for power cable connections
- Clip-on cover protects terminal connections
- 1/4" x .031" male quick connect terminals for ground, optional remote LED and starting isolation
- 7/8" (22.22mm) stud length to accept multiple cable terminals
- Start isolation (SI)—Can be configured for temporary isolation of House loads from Engine circuit during engine cranking to protect sensitive electronics
- 12/24 volt auto ranging voltage input
- Hermetically sealed contacts/vaporproof
- Remote LED output indicates relay state away from ACR (requires optional LED)
- Senses charging on two battery banks

PN: EACR-7610



SPECIFICATIONS		12 VOLTS DC	24 VOLTS DC
Intermittent Rating: 5 Min.		210 Amps	210 Amps
Continuous Rating		120 Amps	120 Amps
(Combine) Amperage Operating Current		175mA	115mA
(Open) Amperage Operating Current		15mA	15mA
Maximum Cable Size		1/0 AWG	1/0 AWG
Terminal Stud Size		3/8"-16 (M10)	3/8"-16 (M10)
Maximum Torque		140 in-lbs	140 in-lbs
RELAY CONTACT POSITION			
Combine	(30 sec.)	13.6 Volts	27.2 Volts
	(2 min.)	13.0 Volts	26.0 Volts
Open	(10 sec.)	12.35 Volts	24.7 Volts
	(30 sec.)	12.75 Volts	25.5 Volts
Open High		16.0 Volts	30.0 Volts

- CE Marked
- Meets ISO 8846, UL 1500, and SAE J1171 external ignition protection requirements
- IP67—temporary immersion for 30 minutes

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INDICATOR LIGHTS

E3L

3L Series are compact style lights that snap-fit into a 5/16" hole and are secured with a spring clip. Long body style with a built in resistor, 3L lights are constructed with Dupont Zytel 132F with a 14, 28, and 125 volt incandescent bulb, flush type mount, and a translucent lexan lens. All lights come with 6" 105˚C tinned copper wire leads. Base and bezel colors are black. UL Listed.

E5S

5S Series lights snapfit into a 1/2" hole, and are secured into place with self locking ears. The lights are constructed with the same materials as the 3L series and are available in 14, 28, 125 volt ranges. All 5S lights have a silver plated bezel.

FEATURES:

- Multiple voltage ratings
- 6" UL Tinned Copper Lead Wires
- Available in Red, Green, Amber and Blue
- Built-in Resistor

PART NUMBER	VOLTAGE RATING	MOUNTING METHOD	MOUNTING HOLE SIZE	REQUIRED PANEL DEPTH	PANEL THICKNESS
E3L-14	14	SNAP IN w/SPRING CLIP	5/16" (.312)	1.420"	.030" MIN.
E3L-28	28	SNAP IN w/SPRING CLIP	5/16" (.312)	1.420"	.030" MIN.
E3L-125	125	SNAP IN w/SPRING CLIP	5/16" (.312)	1.420"	.030" MIN.
E5S-14	14	SELF LOCKING EARS	1/2" (.500)	.900"	.025" TO .080"
E5S-28	28	SELF LOCKING EARS	1/2" (.500)	.900"	.025" TO .080"
E5S-125	125	SELF LOCKING EARS	1/2" (.500)	.900"	.025" TO .080"

*ADD THE FOLLOWING EXTENSION FOR LENS COLOR.
-R for RED lens
-G for GREEN lens
-A for AMBER lens
-B for BLUE lens
EXAMPLE: E3L-14-B = E3L series, 14 volt with a Blue lens.

ORDERING INFORMATION: Order by the piece.

BLUE SEA SYSTEMS METERS

Analog meters are constructed using high quality rotating coil movements on jewel bearings. All Blue Sea System meters are mountable on the front panel surface or from behind the panel. Accuracy on all meters is 3% of scale.
Standard Meters - Face Width/Mounting Hole: 2-1/2" / 2-1/16"
*Micro Meters - Face Width/Mounting Hole: 2" / 1-3/4"

DC AMP METERS

Simple two-wire connection from shunt, no other power is required. All meters have shunts included. Meter senses and powers from shunt. Packaged complete with shunt.

PART NUMBER	DESCRIPTION	RANGE
EM-DCA-50BS	STANDARD EXTERNAL	0 - 50 AMPS
EMM-DCA-50BS	*MICRO METER EXTERNAL	0 - 50 AMPS
EM-DCA-75BS	STANDARD EXTERNAL	0 - 75 AMPS
EM-DCA-100BS	STANDARD EXTERNAL	0 - 100 AMPS
EM-DCA-150BS	STANDARD EXTERNAL	0 - 150 AMPS

DC SHUNTS

Shunt Type:
Resistive, Manganin Meter Element

PART NUMBER	DESCRIPTION
EM-9228	Shunt 50A/50MV
EM-9229	Shunt 75A/50MV
EM-9230	Shunt 100A/50MV
EM-9231	Shunt 150A/50MV

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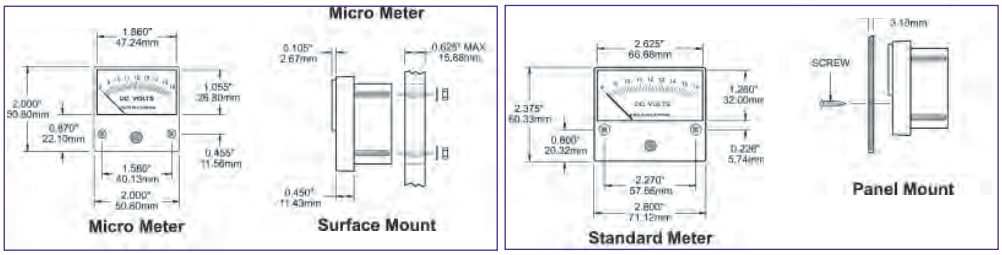
DC VOLT METERS

METER DIMENSIONS



DC VOLT METERS

Simple 2-wire Connection

8 - 16 volt Range

PART NUMBER	DESCRIPTION	RANGE
EM-DCV-8-16BS	STANDARD ANALOG	8 - 16 VOLTS
EMM-DCV-8-16BS	*MICRO METER ANALOG	8 - 16 VOLTS

AC VOLT METERS

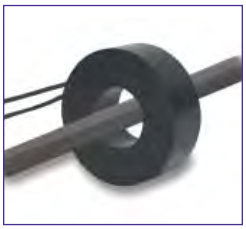
AC AMP METERS

50 Ampere Dial Marked in 2 Ampere Increments

Simple 2-wire Connection

Meter Senses and Powers From Coil Slipped Over Wire to be Measured.

PART NUMBER	DESCRIPTION	RANGE
EM-ACA-50BS	STANDARD ANALOG	0 - 50 AMPS
EM-ACA-100BS	STANDARD ANALOG	0-100 AMPS



AC CURRENT COILS

PART NUMBER	DESCRIPTION	COIL RATIO
EM-8073	ANALOG AMMETER COIL	50A AC/50MA AC
EM-8257	ANALOG AMMETER COIL	100A AC/50MA AC

AC VOLT METERS

Marked in 5 Volt Increments

Simple 2-wire Connection to AC Hot and Neutral.

Meter senses and powers from the same connection.

PART NUMBER	DESCRIPTION	RANGE
EM-ACV-150BS	STANDARD ANALOG	0 - 150 VOLTS

JUNCTION BOXES AND ENCLOSURES

Fiberglass reinforced polyester enclosures are designed for use as electrical junction boxes in highly corrosive environments such as marine installations. Enclosures are also suitable as instrument housings in both indoor and outdoor applications. Window enclosures provide easy visual inspection of interior components.

FEATURES:

- Designed in accordance with the Joint Industrial Council (JIC)-USA
- Bases and covers are made of gray (RAL 7036), hot molded, fiberglass reinforced polyester
- Continuous gaskets made of polyurethane foam guarantee optimal integrity
- Cover screw holes in corners are outside of gasket area
- All mounting hardware is made of 316 stainless steel
- The enclosure can be readily worked with conventional tools
- Withstands continuous temperatures up to 150˚C.
- Enclosures are maintenance free and corrosion resistant
- Enclosures have three cover configurations:
  - Screw Fastened
  - Hinged and Screw Fastened
  - Hinged and Padlock Latch
- Aluminum mounting plates sold separately
- Junction boxes are sold with solid or clear covers

JUNCTION BOXES WITH KNOCKOUTS

PART NUMBER	OUTSIDE DIM. H	W	D	COVER STYLE
ENCL332	3.5	3.5	1.6	SOLID
ENCL332C	3.5	3.5	1.6	CLEAR
ENCL533	4.7	2.7	2.7	SOLID
ENCL533C	4.7	2.7	2.7	CLEAR
ENCL553	4.7	4.7	2.7	SOLID
ENCL553C	4.7	4.7	2.7	CLEAR

ENCLOSURES

PART NUMBER	OUTSIDE DIM. (INCH) H	W	D	INSIDE DIM. (INCH) H	W	D	COVER STYLE
ENCL606W	7.31	7.31	4.96	6	6	4.15	SCREW FASTED
ENCL606HW							HINGED & SCREW FASTENED
ENCL606HWPL1							HINGED & LATCHED
ENCL806W	9.30	7.31	4.96	8	6	4.15	SCREW FASTED
ENCL806HW							HINGED & SCREW FASTENED
ENCL806HWPL1							HINGED & LATCHED
ENCL1008W	11.31	9.31	5.43	10	8	4.64	SCREW FASTED
ENCL1008HW							HINGED & SCREW FASTENED
ENCL1008HWPL1							HINGED & LATCHED
ENCL1008GW							SCREW FASTENED w/ GASKET WINDOW
ENCL1210W	13.30	11.29	5.58	12	10	4.79	SCREW FASTED
ENCL1210HW							HINGED & SCREW FASTENED
ENCL1210HWPL2							HINGED & LATCHED
ENCL1412W	15.32	13.30	6.70	14	12	5.79	SCREW FASTED
ENCL1412HW							HINGED & SCREW FASTENED
ENCL1412HWPL2							HINGED & LATCHED
ENCL1614W	17.31	15.30	6.70	16	14	5.79	SCREW FASTED
ENCL1614HW							HINGED & SCREW FASTENED
ENCL1614HWPL2							HINGED & LATCHED
ENCL1816W	19.31	17.31	9.58	18	16	8.67	SCREW FASTED
ENCL1816HW							HINGED & SCREW FASTENED
ENCL1816HWPL2							HINGED & LATCHED

Gasket windows are stocked in 10x8x5, other sizes are available by request.

ALUMINUM MOUNTING PLATES

PART NUMBER	DIM. (INCH) H	W
EMP533	4.21	2.
EMP553	4.21	4.21
EMP606A	4.88	4.88
EMP806A	6.75	4.88
EMP1008A	8.75	6.88
EMP1210A	10.5	8.88
EMP1412A	12.75	10.88
EMP1614A	14.75	12.88
EMP1816A	16.75	14.88

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CONVERSION FACTORS

ENGLISH/METRIC
METRIC/ENGLISH

LENGTH	AREA	VOLUME	MASS
Inch x 25.40 = Millimeters	Sq. Inch x 6.452 = Sq. Centimeter	Cu. Inch x 16.39 = Cu. Centimeter	Ounce x 28.35 = Gram
Millimeters x 0.03973 = Inches	Sq. Centimeter x 0.155 = Sq. Inch	Cu. Cm. x 0.06102 = Cu. Inch	Gram x 0.03527 = Ounce
Feet x 0.3048 = Meters	Sq. Foot x 0.0929 = Sq. Meter	Cu. Foot x 0.02832 = Cu. Meter	Pound x 0.4536 = Kilogram
Meters x 3.281 = Feet	Sq. Meter x 10.76 = Sq. Foot	Cu. Meter x 35.31 = Cu. Foot	Kilogram x 2.205 = Pound
Miles x 1.609 = Kilometers	Sq. Mile x 2.59 = Sq. Kilometer		Kilogram/km x 0.6214 = Pounds/kft
Kilometers x 0.6214 = Miles	Sq. Kilometer x 0.3861 = Sq. Mile		Pounds/kft x 1.4881 = Kilogram/km
Ohms/km x 0.3048 = Ohms/kft	Circular Mil x 0.7854 = Sq. Mil		

TEMPERATURE CONVERSION FORMULAE

CENTIGRADE/FARENHEIGHT

$$°C = \frac{5}{9}(°F - 32)$$

FARENHEIGHT/CENTIGRADE

$$°F = \frac{9}{5}(°C + 32)$$

CALCULATING VOLTAGE DROP

All wire has a finite resistance to current flow. This resistance causes a voltage to develop across the length of a current carrying conductor. The result is that the intended load is robbed of the full potential of its source battery.

The tables below are calculated for the two allowable percent voltage drops specified by ABYC (cf. E-11.16). Conductors shall be sized for a voltage drop not to exceed:

- **3%:** For conductors feeding panelboard or switchboards, bilge blowers, navigation lights, electronic equipment, and any other circuit where voltage drop must be kept to a minimum.
- **10%:** For conductors used for general lighting (other than navigational lights) and other non-critical circuits.

To calculate the size of the wire required for a given voltage drop the following formula is used:

$$CM = \frac{K \times I \times L}{E}$$

CM = The required circular mil area of the wire (See table 1).
K = Equals 10.75, (represents the mil-foot resistance of copper)
I = The load current in amperes. (Note: for maximum current carrying capabilities of a conductor refer to Table 4).
L = The round trip length of the wire measured in feet from the positive terminal of the source, to the load, and back to the source's negative terminal.
E = The voltage drop on the conductor in volts. For example, a 3% drop from a 12 volt source results in: E = (12 x 0.03) = 0.36

TABLE 1: CONDUCTOR CIRCULAR MIL (CM) AREA

AWG	AWG MM^2	Square mm	ISO MH^C	ABYC CM Area E-11.16 Tbl. XII (All UL Wire)	SAE CM Area J1127, J1128
18	.82	0.8	.75	1,620	1,537
16	1.31	1	1.5	2,580	2,336
14	2.08	2	2.5	4,110	3,702
12	3.31	3	4.0	6,530	5,833
10	5.26	5	6.0	10,380	9,343
8	8.39	8	10.0	16,510	14,810
6	13.3	13	16.0	26,240	24,538
4	21.2	19	—	41,740	37,360
2	33.6	32	35.0	66,360	62,450
1	42.4	40	—	83,690	77,790
1/0	53.5	50	50.0	105,600	98,980
2/0	67.7	62	70.0	133,100	125,100
3/0	85.6	81	95.0	167,800	158,600
4/0	107	103	—	211,600	205,500

TABLE 2: CONDUCTOR SIZES FOR 3% DROP IN VOLTAGE - 12 AND 24 VOLTS

12 VOLT - BASED ON MINIMUM CIRCULAR MIL (CM) AREA — **ABYC E-11.16 Table.X**

LENGTH	TOTAL CURRENT ON CIRCUIT IN AMPS												
	5	10	15	20	25	30	40	50	60	70	80	90	100
10	18	14	12	10	10	10	8	6	6	6	6	4	4
15	16	12	10	10	8	8	6	6	4	4	4	2	2
20	14	10	10	8	6	6	6	4	4	2	2	2	2
25	12	10	8	6	6	6	4	4	2	2	2	1	1
30	12	10	8	6	6	4	4	2	2	1	1	1/0	1/0
40	10	8	6	6	4	4	2	2	1	1/0	1/0	2/0	2/0
50	10	6	6	4	4	2	2	1	1/0	2/0	3/0	3/0	3/0
60	10	6	6	4	2	2	1	1/0	2/0	3/0	3/0	4/0	4/0
70	8	6	4	2	2	1	1/0	2/0	3/0	3/0	4/0	4/0	
80	8	6	4	2	2	1	1/0	2/0	3/0	4/0	4/0		
90	8	4	2	2	1	1/0	2/0	3/0	4/0	4/0			
100	6	4	2	2	1	1/0	2/0	3/0	4/0				
110	6	4	2	1	1/0	1/0	3/0	4/0	4/0				
120	6	4	2	1	1/0	2/0	3/0	4/0					
130	6	2	2	1	1/0	2/0	3/0	4/0					
140	6	2	1	1/0	2/0	3/0	4/0						
150	6	2	1	1/0	2/0	3/0	4/0						
160	6	2	1	1/0	2/0	3/0	4/0						
170	6	2	1	2/0	3/0	3/0	4/0						

24 VOLT - BASED ON MINIMUM CIRCULAR MIL (CM) AREA

LENGTH	TOTAL CURRENT ON CIRCUIT IN AMPS												
	5	10	15	20	25	30	40	50	60	70	80	90	100
10	18	18	16	14	12	12	10	10	10	8	8	8	6
15	18	16	14	12	12	10	10	8	8	6	6	6	6
20	18	14	12	10	10	10	8	6	6	6	6	4	4
25	16	12	12	10	10	8	6	6	6	4	4	4	4
30	16	12	10	10	8	8	6	6	4	4	4	2	2
40	14	10	10	8	6	6	6	4	4	2	2	2	2
50	12	10	8	6	6	6	4	4	2	2	2	1	1
60	12	10	8	6	6	4	4	2	2	1	1	1/0	1/0
70	12	8	6	6	4	4	2	2	1	1	1/0	1/0	2/0
80	10	8	6	6	4	4	2	2	1	1/0	1/0	2/0	2/0
90	10	8	6	4	4	2	2	1	1/0	1/0	2/0	2/0	3/0
100	10	6	6	4	4	2	2	1	1/0	2/0	2/0	3/0	3/0
110	10	6	6	4	2	2	1	1/0	1/0	2/0	3/0	3/0	4/0
120	10	6	4	4	2	2	1	1/0	2/0	3/0	3/0	4/0	4/0
130	8	6	4	2	2	2	1	1/0	2/0	3/0	3/0	4/0	4/0
140	8	6	4	2	2	1	1/0	2/0	3/0	3/0	4/0	4/0	
150	8	6	4	2	2	1	1/0	2/0	3/0	3/0	4/0	4/0	
160	8	6	4	2	2	1	1/0	2/0	3/0	4/0	4/0	4/0	
170	8	6	2	2	1	1	2/0	3/0	3/0	4/0	4/0		

TABLE 3: CONDUCTOR SIZES FOR 10% DROP IN VOLTAGE - 12 AND 24 VOLTS

12 VOLT - BASED ON MINIMUM CIRCULAR MIL (CM) AREA — **ABYC E-11.16 Table.XI**

LENGTH	TOTAL CURRENT ON CIRCUIT IN AMPS												
	5	10	15	20	25	30	40	50	60	70	80	90	100
10	18	18	18	16	16	14	14	12	12	10	10	10	10
15	18	18	16	14	14	12	12	10	10	8	8	8	8
20	18	16	14	14	12	12	10	10	8	8	8	6	6
25	18	16	14	12	12	10	10	8	8	6	6	6	6
30	18	14	12	12	10	10	8	8	6	6	6	6	4
40	16	14	12	10	10	8	8	6	6	6	4	4	4
50	16	12	10	10	8	8	6	6	4	4	4	2	2
60	14	12	10	8	8	6	6	4	4	2	2	2	2
70	14	10	8	8	6	6	6	4	2	2	2	2	1
80	14	10	8	8	6	6	4	4	2	2	2	1	1
90	12	10	8	6	6	6	4	2	2	2	1	1	1/0
100	12	10	8	6	6	4	4	2	2	1	1	1/0	1/0
110	12	8	8	6	6	4	2	2	2	1	1/0	1/0	1/0
120	12	8	6	6	4	4	2	2	1	1	1/0	1/0	2/0
130	12	8	6	6	4	4	2	2	1	1/0	1/0	2/0	2/0
140	10	8	6	6	4	2	2	1	1	1/0	2/0	2/0	2/0
150	10	8	6	4	4	2	2	1	1/0	1/0	2/0	2/0	3/0
160	10	8	6	4	4	2	2	1	1/0	2/0	2/0	3/0	3/0
170	10	6	6	4	2	2	2	1	1/0	2/0	2/0	3/0	3/0

24 VOLT - BASED ON MINIMUM CIRCULAR MIL (CM) AREA

LENGTH	TOTAL CURRENT ON CIRCUIT IN AMPS												
	5	10	15	20	25	30	40	50	60	70	80	90	100
10	18	18	18	18	18	18	16	16	14	14	14	12	12
15	18	18	18	18	16	16	14	14	12	12	12	10	10
20	18	18	18	16	16	14	14	12	12	10	10	10	10
25	18	18	16	16	14	14	12	12	10	10	10	8	8
30	18	18	16	14	14	12	12	10	10	8	8	8	8
40	18	16	14	14	12	12	10	10	8	8	8	6	6
50	18	16	14	12	12	10	10	8	8	6	6	6	6
60	18	14	12	12	10	10	8	8	6	6	6	6	4
70	16	14	12	10	10	8	8	6	6	6	6	4	4
80	16	14	12	10	10	8	8	6	6	6	4	4	4
90	16	12	10	10	8	8	6	6	6	4	4	4	2
100	16	12	10	10	8	8	6	6	4	4	4	2	2
110	14	12	10	8	8	8	6	6	4	4	2	2	2
120	14	12	10	8	8	6	6	4	4	2	2	2	2
130	14	12	10	8	8	6	6	4	4	2	2	2	2
140	14	10	8	8	6	6	6	4	2	2	2	2	1
150	14	10	8	8	6	6	4	4	2	2	2	2	1
160	14	10	8	8	6	6	4	4	2	2	2	1	1
170	12	10	8	6	6	6	4	2	2	2	2	1	1

TABLE 4A: ALLOWABLE AMPERAGE OF CURRENT CARRYING CONDUCTORS UNDER 50 VOLTS FOR 105°C CABLES - ABYC E-11.16

CONDUCTOR SIZE	SINGLE CONDUCTOR	
ENGLISH (METRIC)	OUTSIDE ENGINE SPACES	INSIDE ENGINE SPACES
18 (0.8)	20	17.0
16 (1)	25	21.3
14 (2)	35	29.8
12 (3)	45	38.3
10 (5)	60	51
8 (8)	80	68
6 (13)	120	102
4 (19)	160	136
2 (32)	210	178
1 (40)	245	208
0 (50)	285	242
00 (62)	330	280
000 (81)	385	327
0000 (103)	445	378

TABLE 4B: ALLOWABLE AMPERAGE OF CONDUCTORS WHEN MULTIPLE CONDUCTORS ARE BUNDLED TOGETHER FOR 105°C CABLES - ABYC E-11.16

	TABLE VIIA		TABLE VIIB		TABLE VIIC		TABLE VIID	
CONDUCTOR SIZE	NO MORE THAN 2 CONDUCTORS ARE BUNDLED		WHEN 3 CONDUCTORS ARE BUNDLED		WHEN 4-6 CONDUCTORS ARE BUNDLED		WHEN 7-24 CONDUCTORS ARE BUNDLED	
ENGLISH (METRIC)	OUTSIDE ENGINE SPACES	INSIDE ENGINE SPACES	OUTSIDE ENGINE SPACES	INSIDE ENGINE SPACES	OUTSIDE ENGINE SPACES	INSIDE ENGINE SPACES	OUTSIDE ENGINE SPACES	INSIDE ENGINE SPACES
18 (0.8)	20	17.0	14.0	11.9	12.0	10.2	10.0	8.5
16 (1)	25	21.3	17.5	14.9	15.0	12.8	12.5	10.6
14 (2)	35	29.8	24.5	20.8	21.0	17.9	17.5	14.9
12 (3)	45	38.3	31.5	26.8	27.0	23.0	22.5	19.1
10 (5)	60	51.0	42.0	35.7	36.0	30.6	30.0	25.5
8 (8)	80	68.0	56.0	47.6	48.0	40.8	40.0	34.0
6 (13)	120	102.0	84.0	71.4	72.0	61.2	60.0	51.0
4 (19)	160	136.0	112.0	95.2	96.0	81.6	80.0	68.0
2 (32)	210	178.5	147.0	125.0	126.0	107.1	105.0	89.3
1 (40)	245	208.3	171.5	145.8	147.0	125.0	122.5	104.1
0 (50)	285	242.3	199.5	169.6	171.0	145.4	142.5	121.1
00 (62)	330	280.5	231.0	196.4	198.0	168.3	165.0	140.3
000 (81)	385	327.3	269.5	229.1	231.0	196.4	192.5	163.6
0000 (103)	445	378.3	311.5	264.8	267.0	227.0	222.5	189.1

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TABLE 5A & B

A: CIRCUIT BREAKER INTERRUPTING CAPACITY (AMPS) ABYC TABLE V.B E-11.16

SHORE POWER	AMPS	MAIN BREAKER SHORE POWER DISCONNECT BREAKER	BRANCH BREAKER
120V - 30A	30A	3,000	3,000
120V - 50A	50A	3,000	3,000

NOTE 1: The main circuit breaker is considered to be the first circuit breaker connected to a source of AC power. All subsequent breakers, including sub-main breakers, connected in series with a main circuit breaker shall be considered to be branch circuit breakers.

2: A fuse in series with, and ahead of, a circuit breaker may be required by the circuit breaker manufacturer to achieve the interrupting capacity in the above table.

B: CIRCUIT BREAKER INTERRUPTING CAPACITY (AMPS) ABYC TABLE V.A E-11.16

	TOTAL CONNECTED BATTERY COLD CRANKING AMPS	MAIN BREAKER (AMPERES)*	BRANCH BREAKER (AMPERES)*
12V/24V	650 or LESS	1500	750
12V/24V	651 - 1100	3000	1500
12V/24V	OVER 1100	5000	2500

*NOTE: The main circuit breaker(s) is considered to be the first breaker(s) in a circuit connected in series with the battery. All subsequent breakers, including sub-main breakers, connected in series with a main circuit breaker shall be considered to be branch circuit breakers.

TABLE 6: ENGINE AND ACCESSORY WIRING COLOR CODE PER ABYC E-11.16 TABLE XV

COLOR	PACER COLOR SUFFIX	ITEM	USE
Green, or Green w/Yellow stripe	GN, or GN-4		DC Grounding Conductors
Black or Yellow*	BK or YL		DC Negative Conductors
Red	RD		DC Positive Conductors
Yellow w/Red Stripe	YL-2	Starting Circuit	Starting Switch to Solenoid
Brown/Yellow or	BR-4	Bilge Blowers	Fuse or Switch to Blowers
Yellow (See note)	YL		
Dark Gray	GY	Navigation Lights Tachometer	Fuse or Switch to Lights Tachometer Sender to Gauge
Brown	BR	Generator Armature Alternator Charge Light Pumps	Generator Armature to Regulator Generator Terminal/Alternator Auxiliary Terminal to Light to Regulator Fuse or Switch to Pumps
Orange	OR	Accessory Feed Accessory Feeds	Ammeter to Alternator or Generator Output and Accessory Fuses or Switches Distribution Panel to Accessory Switch
Violet (Purple)	VI	Ignition Instrument Feed	Ignition Switch to Coil and Electrical Instruments Distribution Panel to Electric Instruments
Dark Blue	BL	Cabin and Instrument Lights	Fuse or Switch to Lights
Light Blue	LB	Oil Pressure	Oil Pressure Sender to Gauge
Tan	TN	Water Temperature	Water Temperature Sender to Gauge
Pink	PK	Fuel Gauge	Fuel Gauge Sender to Gauge
Green/"Stripe" (Except GN-4)	GN-x	Tilt Down and/or Trim In	Tilt and/or Trim Circuits
Blue/"Stripe"	BL-x	Tilt Up and/or Trim Out	Tilt and/or Trim Circuits

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